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AUTHOR Thacker, Cheryl
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ABSTRACT

This handbook provides information on various techniques and strategies that can reduce excessive behaviors and improve deficit behaviors in children with autism. Chapter 1 gives an overview of autism and discusses the development of social skills and play skills in individuals with high-functioning autism. The characteristics of children with Asperger's syndrome, the phenomena of hyperlexia, and the relationship of autism to mental retardation are also reviewed. The final section of Chapter 1 discusses research regarding behavior modification techniques as applied to individuals with autism. Chapter 2 presents techniques to increase and improve the social and communication skills of children with Asperger's syndrome. Interventions, such as integrated play groups and social reading strategies, are outlined and behavior modification techniques are presented. Chapter 3 provides a case study of a five-year-old boy with autism. His diagnosis and current educational placements are described. Appendices include the diagnostic criteria for autistic disorder, Asperger's disorder, and mental retardation; observation forms used in the case study; a bibliography of storybooks that can be used to increase vocabulary and comprehension skills; a sample lesson plan; and the suggestions of a speech and language pathologist for helping the boy develop better socialization skills. (Contains 58 references.) (CR)

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Handbook on Autism

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By Cheryl Thacker

August, 1996

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To Wayne, Sara, Katie, and Tessa:

Thank you for being so patient while your wife and mother went to school. Thank you for helping with extra chores. Thank you for accepting the adventure of a move. Thank you for allowing me the opportunity to explore new challenges. And, most of all, thank you for always believing that I could do "it". You were right - I did it!

Table of Contents

Introduction	1
Chapter One - Literature Review	5
Chapter Two - Strategies	63
Chapter Three - Case Study	106
References	120
Bibliography	127
Appendix A - Diagnostic Criteria for Autistic Disorder	128
Appendix B - Diagnostic Criteria for Asperger's Disorder	129
Appendix C - Diagnostic Criteria for Mental Retardation	130
Appendix D - Observation Forms	131
Appendix E - Individual Preschool Schedule	133
Appendix F - Social Story for Taking Turns at the Computer	138
Appendix G - Special Bibliography	140
Appendix H - Observations	141
Appendix I - Team Meetings	180
Appendix J - Lesson Plan	201
Appendix K - Consultant's Package	203

Introduction

There is no doubt in anyone's mind, at least those who work with children and adults challenged by autism, that this particular group of people present with puzzling, and often times, difficult behaviours. We do not yet know the specific cause of autism, nor are there any reliable cures for autism. We do know, however, that by employing various techniques and strategies with people who have autism, we can reduce excessive behaviours and improve deficit behaviours (Schriebman, 1994).

Chapter 1 will provide an overview of the disorder known as autism. It will cover the current thoughts in the field, as well as look at the history of autism. The aetiology of autism will be explored as well.

Chapter 1 will then focus on the issue of social skill development in individuals with high-functioning autism. It will address the development of play skills as well. Some of the current literature regarding social skill development and play skills will be reviewed.

Chapter 1 will explore Asperger's syndrome. This section will focus on the history and characteristics of children with Asperger's syndrome. The phenomena of hyperlexia will also be examined.

The next section of Chapter 1 will focus on the relationship of autism to mental retardation. Various viewpoints relating to this issue will be explored. The final section of Chapter 1 will look at the literature regarding behaviour modification techniques as applied to individuals with autism.

Chapter 2 deals specifically with the strategies and techniques. This chapter begins by looking at techniques to increase and improve the social and communication skills of individuals with Asperger's syndrome. Interventions, such as integrated play groups and social reading strategies will be outlined, as well as other strategies. Chapter 2 will end with a discussion of behaviour modification techniques. Many times, the high-functioning individual with autism engages in inappropriate or self-abusive behaviours. Therefore, knowledge of basic behaviour modification techniques and principles is essential for all those involved with individuals who are challenged by autism.

Chapter 3 presents a case study of a young boy diagnosed with autism. His past history, diagnosis, and current educational placements will be outlined. In order for the reader to obtain a general idea of what life is like for someone who has autism, his personal characteristics and idiosyncrasies will be detailed,

This handbook in intended to be used by parents, professionals and people with autism. It is hoped that this handbook can, in some small way help parents, caregivers, and teachers to find some practical answers to the puzzling phenomenon called autism.

Many people helped with the completion of this project. A warm and heartfelt thank you is extended to everyone listed below.

I could not have even begun this project if it were not for my landlords, who were also my children's caregivers. They looked after me and my children and gave me the time I needed to study and write this handbook.

My college supervisor was a constant source of encouragement and support. I learned so much from her. Even long distances did not prevent her from "being there" for me.

I wish to thank my parents for helping with the children. We appreciated all the free meals as well!

A special thank you goes out to Betty Fisher. Betty's contribution to this project was invaluable. Thanks so much, Betty!

Many of the people on the list that follows were kind enough to share with me their memories of, and stories about the autistic children and young adults they have worked with over the years. Collecting the "stories" was perhaps the most enjoyable part of the project for me - listening to people reliving their happiest and saddest moments with individuals who have autism reinforced for me that the autistic population is truly incredible and amazing.

The illustrations found in the handbook were done by Frances Walsh. Thank you, Frances, for the beautiful pictures.

I cannot possibly list everyone's contribution to this handbook. Therefore, I will simply list everyone's name and say once more - Thank you very much.

Jean Bacon	Barb Bloom	Wilma Clark
Loretta Eldstrom	Betty Fisher	Irene Friesen
Donald Gallo	Bruce Gordon	Velmarie Halyk Connie
Hawkemess	Paulette Lavergne	Wayne MacDonald
Orlene Martens	Pom Matheos	Corrie Melville
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Kathryn Whitby Gloria Woznik Frances Walsh

And, of course, a big thank-you to "John" and his parents. Thank-you for letting me enter your lives and for letting me get so close to your family. I really appreciate all the time you gave to me and I will always remember my year with "John"!

Chapter 1

A. is a thirteen year old girl with autism. One Christmas, she was the Master of Ceremonies at her school's Christmas concert. She was all dressed up for the occasion with a new pink dress and pair of shoes. The principal was standing next to her on the stage. He accidentally stepped on her new shoe, while A. was giving a narration of the Christmas story. A. turned off the microphone, turned to the principal, looked him in the eye, and said, "Jesus Christ! Would you get off my new pink shoe!" A. proceeded to turn the microphone back on, turned towards the audience, and calmly continued with the narration.

Literature Review

General Overview of Autism

Definitions

Autism is considered a subgroup of Pervasive Developmental Disorder (P.D.D.). Autism is thought to be at the most severe end of the P.D.D. continuum (American Psychiatric Association, 1994). Characteristics of a P.D.D. include an impairment of social interactions, impairment of communication skills, both verbal and non-verbal and impairment of imaginary play. Often associated with autism are other symptoms such as: stereotypical and repetitive repertoires of restricted activities, delayed development of intellectual skills, impaired comprehension skills, abnormal eating and sleeping behaviours, inappropriate responses to sensory input, and self-abusive behaviours. A more detailed list of criteria for diagnosing autism can be found in Appendix A.

An interesting viewpoint was shared with the world when Clara Claiborne Park (1982) wrote a book about the first eight years of her autistic

daughter's life. Park defines autism as:

> All the autistic child's deficiencies could be seen converging in this one: the deficiency which renders it unable or unwilling to put together the primary building blocks of experience. It affects the senses, it affects speech, it affects action, it affects emotion. The autistic child does not move naturally from one sound to another, from one word to another, from one idea to another, from one experience to another. (p. 267)

CHARACTERISTICS AND HISTORY

Kanner

Autism, by now, has come to be a familiar term in our society. I believe this is partly due to the movies and other media that depict such phenomena as the autistic 'savant' (e.g. the movie RainMan) and best selling books that describe 'cures' for autism (e.g. Sound of a Miracle: A Child's Triumph over Autism, Stehli, 1991). I am sure that most educators could provide a definition or description of autism. However, most definitions go back to the 'father' of autism, Dr. Leo Kanner. In 1943, Kanner described eleven patients and their behaviours and called these behaviours "inborn autistic disturbances of affective contact" (p. 250). He was the first to propose that autism could be and should be a separate diagnosis on its own and not a part of

B. is a four year old boy with autism. B. will only eat chocolate chip cookies. Occasionally, B.'s mom can slip in some extra ingredients, such as bran, in order to provide a little extra nutrition. However, most of the time, B. will not tolerate any extra ingredients and will refuse to eat anything if he detects a new taste in the cookie.

mental retardation or schizophrenia. Kanner was also the first, it seems, to point out that autism is present from birth and is, therefore, unlike schizophrenia, which is an acquired syndrome (p. 242).

Some of the common characteristics that Kanner (1944) lists as falling under the category of autism include an inability to relate to people or objects properly, "extreme autistic aloneness" (p. 211), non-existent or disabled language skills, and the obsessive desire for sameness in the environment. Kanner points out that the autistic children he had studied looked quite normal and he felt they were of average or above-average intelligence (p. 217). Kanner includes a brief summary of the parents of the children he had studied and he states that they all appeared to be highly intelligent although not particularly warm or overly emotional (p. 217). Kanner refrains from making a a blatant connection at this time, but he does question the causal relationship between the autistic behaviours and the seemingly cold parenting styles of the parents of these same children (p. 217).

C. is a four year old boy with autism. He very often cries while watching videos. He gets very sad and puts his head on the floor and weeps. He only seems to cry when the videos do not have music in them.

Rimland

Since Kanner's first descriptions and case studies, people have written about autism from varying viewpoints. Most writers on the subject will describe the behaviours and characteristics of autism, all of which resemble Kanner's first descriptions very closely. Rimland (1964) wrote about autism more than 30 years ago, and the symptoms he described then remain relevant today. For

example, Rimland's list of autistic characteristics included such things as trouble with toilet training, abnormal eating patterns, repetitive behaviours, stereotyped play with objects, insistence on the same routines, suspicion of deafness and inappropriate speech and language. Rimland also describes the development of specific skills at an early age, such as early reading skills or exceptional fine motor skills.

Rimland (1964) writes of the exceptional memory skills of autistic children, as demonstrated by their replicating their environment in order to maintain sameness. He also observes that remarkable memory skills are demonstrated when the individual with autism is able to repeat extraordinary things often after only hearing it once.

Another characteristic described by Rimland (1964) is above-average spatial abilities often demonstrated by individuals with autism. This is most often demonstrated through the swift completion of puzzle tasks.

Rimland (1964) writes about the pronoun reversal commonly heard in the speech of children with autism. Rimland offers an interesting explanation for this pronoun reversal. He explains that the:

> You-I reversal is clearly an example of what we refer to as closed-loop phenomena. A sentence such as "Do you want some milk? enters the child's hearing apparatus, is stored without being disassembled or analyzed, and later emerges unchanged when an analogous stimulus situation arises. (p. 87)

Park (1982) also has an explanation for the pronoun reversal that is so common among people with autism. Park feels that by explaining pronoun usage to the autistic child one only makes the situation more confusing for the child. Park wonders how any child learns the very complex skill of pronoun usage in the preschool years. In her mind, normally developing children and mentally retarded children use their social sense, which the autistic child does not possess:

> The social sense must take over and straighten things out - the sense, or complex of senses, that assesses the relations of people in a given situation, how they think of themselves, and consequently what words they use to identify themselves...What it lacks is that social instinct which guides even the dullest of normal children in the labyrinth of personal relations. (p. 206 - 207)

Rimland (1964) describes the prognosis for autism, as it was seen in 1964, as being "closely linked to the speaking ability of the child" (p. 16). This is similar to more current ideas, which indicate that the more speech an autistic child possesses, the better the prognosis (e.g. Frith, 1989).

Apparently, researchers of autism in the 1960's, were disappointed by the therapies available to children and parents. Rimland (1964) states that "autism has not been influenced by any form of therapy" (p. 17). It seems that families were given opposing advice

D. is an eleven year old boy with autism. The staff at his school can not leave any type of open containers in his view. D. will urinate into any open container he sees, even a pop bottle, without making any kind of mess whatsoever.

during the 1950's and 60's. Kanner was advising that "children raised in warm and affectionate surroundings tend to do somewhat better...other writers have commented that autistic children tend to do best in a rigid, minimally stimulating environment" (Rimland, 1964, p. 17).

Rimland (1964) has studied the characteristics of parents who have children with autism. Rimland cites case after case that describes either one parent, or both, as very intelligent and capable. Rimland also found this group of parents to be obsessive, particular to routines and attentive to details. However, Rimland views these as positive characteristics, as opposed to negative influences. He indicates that because these parents were so highly intelligent, and persistent, they demonstrate much concern and caring for their autistic children. This was in direct opposition to what Bettleheim (1967) was saying, around the same time.

Bettelheim

Bettelheim (1967) describes classic symptoms of autism such as "sitting motionless" (p. 98), mutism or echolalia, self-stimulating movements and unnatural obsessions with objects (p.98). Bettelheim, unlike Kanner, does outline definite ideas as to the

cause of such autistic behaviours. He states that "infantile autism is a state of mind that develops in reaction to feeling oneself in an extreme situation, entirely without hope (p. 68). He goes on to say "that the precipitating factor in infantile autism is the parent's wish that his child should not exist" (p. 125). Bettelheim feels that this rejection by the parents begins with poor breast-feeding techniques that leaves the baby upset and unfulfilled and the mother feeling rejected by the baby. This then snowballs into more and more unsatisfying encounters between mother and child, until finally the baby turns away from all interactions and begins his/her descent into autism (p. 395). Bettelheim advocates the removal of these autistic children from their homes. He himself, placed several children with autism in an institution and used a combination of 'love' and psychotherapy to bring these children out of their deeply depressed state. He claims to be very successful at doing this. He reports that:

> Altogether we have worked with forty-six autistic children, all of whom showed marked improvement. But for purposes of comparison the following remarks will be restricted to only forty of these forty-six because one of them (Laurie) was withdrawn after a year; one, unbeknown to us when we accepted her, had been subjected to a long series of electroshock treatments a year before she came to us, which precluded effectiveness in our treatment methods; and four others, at this writing, have not been with us long enough to make valid assessments... there were eight in our forty for whom the end results of therapy were "poor" because, despite improvement, they failed to make the limited social adjustment needed for maintaining themselves in society... seventeen children whose improvement we classified as "good" can for all practical purposes be considered "cured"....The fifteen classified as "fair...are no longer autistic, though eight of them should now be classified as borderline or schizoid, since they have only made a fair social adjustment. The remaining seven do much better and only suffer from more or less severe personality disorders, which limitation has not kept them from making an adequate social adjustment. (p. 413 - 415)

Rimland (1964) argues against the idea that autism is caused by a cold

and uncaring environment. Rimland strongly advocates for a biological cause for autism. He sees the parents' unique characteristics as part of the biological problem and not the cause of the problem.

Park (1982) comments, in her book about her autistic daughter, how it was that some parents might have appeared cold and unfeeling to professionals. She talks about meeting with professionals and being extremely disappointed - Park and her husband were not treated as people, but as a "case". In one instance with some professionals, Park remembers:

> Refrigerator professionals create professional parents, if the parents are strong enough to keep command of themselves at all. I had gone in a highly emotional state, ready to tremble, to weep, to dissolve in gratitude. Received not even with reproaches, but with no reaction at all, I of course dried up my emotions at once and met professionalism with professionalism. (p. 143 - 144)

Nowadays, this idea of parental causation for autistic behaviours is considered inappropriate and is no longer advocated by professionals in the field (Kauffman, 1993, p. 212; Tsai & Ghaziuddin, 1992, p.53; Powell, Hecimovic & Christensen, 1992, p. 191).

E. is a six year old boy with autism. E. is very agile and sure-footed. E. is able to climb up onto the roof of his house and walk along the edge, right beside the gutter, without falling off.

Delacato

In the 70's new approaches to dealing with autism appear. Prominent among them was a sensory-

integration type of treatment developed by Delacato (1974). Delacato's research led him to believe that "These children were not psychotic. They were brain-injured" (p. 54).

Delacato's (1974) treatment consists of first identifying the "sensoryisms" (p. 84) of tactility, smell, vision, auditory and taste and then deciding if the child was hyper or hypo in the sensory experience. The actual treatment provides either extra stimulation or reduced stimulation to the affected sensory organs. Delacato claims to have been successful in treating six out of seven children discussed in his case studies. However, he does state that "this theory is not presented as a 'cure-all'. Even with this theory and these practices, I have failures" (p. 167).

Hinerman

More recent writers in the field of autism have been more consistent when it comes to describing the characteristics of autism. Hinerman (1983) has done an excellent review of the various characteristics. She describes the behavioural characteristics as "slow development or lack of physical, social, and learning skills... abnormal responses to sensations...abnormal ways of relating to people, objects and events" (p. 5).

Autism is usually defined as involving language impairments as well, which may include such things as "immature grammatical structure, delayed or

immediate echolalia, pronominal reversal...abnormal speech melody...poor receptive language...mutism, or a kind of language that does not seem intended for the purposes of interpersonal communication" (p. 7).

Another major area of dysfunction for the autistic person is the area of social relationships. They may display a "lack of responsiveness to people, lack of interest in people, failure to develop attachment to the mother (as infants), lack of eye contact and facial responsiveness, and indifference or aversion to affection and physical contact" (p. 8 -9). Of course, some individuals with autism may display other characteristics as well, which may include such things as "unusual responses to their environment...an obsessive attachment to certain objects...aversion to clothing...self-stimulatory behaviour...stereotyped play patterns...severe disturbances in the development of perception" (p. 9).

F., age thirteen, is diagnosed as a high-functioning person with autism. One day F. overheard his teacher discussing a book on autism with another teacher. They were talking about a part of the book which quoted an autistic child saying she could "hear" her own heartbeat and blood flowing through her veins. F. turned, looked at his teacher, and asked, "Can't everyone?"

Frith and Baron-Cohen

The prevailing theory in the field of autism today involves a concept called the 'theory of mind' (Frith, 1989). This theory is very useful in that it can explain or give reasons for the apparently bizarre behaviour of many people with autism. Frith describes theory of mind as a tool that people possess and use when

dealing with others. It is a mental process we go through in our relationships with other people. It allows us to infer what other people are feeling and thinking, and lets us predict what may happen next.

Baron-Cohen (1995) defines theory of mind as the ability "to attribute mental state to oneself and to others and to interpret behaviour in terms of mental states... mental states are unobservable entities that we use quite successfully to explain and predict behavior" (p. 55)

Frith (1989) proposes that people with autism lack this theory of mind:

> The possibility that autistic children lack a theory of mind has been suggested already on the basis of their peculiar inability to relate to people in the ordinary way. One implication of this hypothesis is that autistic individuals are natural behaviorists and do not feel the normal compulsion to weave together mind behavior for the sake of coherence. (p. 158)

Baron-Cohen (1995) explains that in order for people to have a theory of mind mechanism (ToMM), they must also have a shared attention mechanism (SAM). Baron-Cohen says the shared attention mechanism (SAM) happens when two people focus their attention on the same object. The SAM uses "available information about the perceptual state of another person (or animal)... It then computes shared attentions by comparing another agent's perceptual state with the self's current perceptual state (p. 45 -46).

G. is a twelve year old girl with autism. G. can say a few words, but relies on sign language for the bulk of her communication needs. G. can finger spell exceptionally well. She watches the learning channel on TV and has come to school finger spelling such complicated words as "archaeology" and "Smithsonian".

Frith (1989) goes on to explain that the "loneliness of the autistic child does not merely consist of a deficiency in expressing and understanding emotions. To the autistic individual other mental states, such as knowing and believing, are equally a mystery" (p. 168).

Frith's (1989) arguments leading to these conclusions are lengthy and detailed. She compared normally developing children, mentally handicapped children and autistic children. Her experiments showed that normally developing children and mentally handicapped children, although different in IQ, could both identify mental states in others. Because these children had a knowledge of how the human mind works, they could predict other's behaviours. This was not the case, however, for autistic children.

Baron-Cohen (1995) and associates have also shown through similar experiments, that autistic people do not possess a SAM or a ToMM. However, they have shown that young children and children with intellectual disabilities do possess both mechanisms. This supports the theory that the basic deficit of autistic people is their lack of theory of mind.

The theory of mind concept has implications for how we can deal with individuals with autism. Frith (1989) explains:

> it would be useful to adopt a literal and behaviorist mode as a partner of an autistic person, both as listener and as speaker. Implications need to be spelled out for the autistic person, even if they seem redundant and self-evident in normal communication....information needs to be actively solicited since the autistic person may 'forget' to mention an important fact. (p.180)

Baron-Cohen (1995) discusses ToMM and its relationship to language development. Baron-Cohen questions which develops first - language or the ability to read another person's mind? Baron-Cohen argues:

> that this drive to inform, to exchange information, to persuade, or to find out about the other person's thoughts is principally based on mindreading, and that mindreading is enabled by the language faculty. But by itself, unless it is hooked up to the mindreading system, the language faculty may hardly be used - at least, not socially. (p. 131)

H. is a young three year old boy with autism, who cannot talk. H. has some peculiar eating habits. He will only eat one food at a time, for days or weeks on end. For example, sometimes H. will only eat potato chips for one week, then suddenly, for no apparent reason, he will switch to eating only cookies for a week, and so on.

Baron-Cohen (1995) feels that we are mindreaders first, then developers of language. He defines mindreading as the "capacity to imagine or represent states of mind that we or others might hold" (p. 2). Baron-Cohen supports his argument that this mindreading ability develops before language by stating:

> consider a person who has an intact language faculty but who cannot mindread (autism arguably being such a case). Such a person would be able to reply in perfectly well formed sentences when asked a question like "Where do you live?" but would be unable to engage in social dialogue - normal conversation. (p. 131)

Baron-Cohen (1995) stresses that there are many types of autism and other subgroups many involve more than what he calls "mindblindness" (p. 1). Mindblindness is being aware of the physical world, but unaware of mental

things; "blind to things like thought, beliefs, knowledge, desires, and intentions" (p.1). Baron-Cohen suggests that "we need to be careful about concluding that autism involves mindblindness and nothing else. My suggestion here is that autism involves mindblindness as a core deficit, but that other deficits may co-occur" (p. 137).

Aarons and Gittens

Historically, the diagnosis of autism has been problematic. At one time, researchers and others in the field diagnosed autism on the basis of "all or nothing" (Aarons & Gittens, 1992, p. 23). Most people in the field are now moving away from this towards looking at the characteristics on the continuum of autism. Aarons and Gittens recommend a "descriptive approach to diagnosis" (p.23) that includes "observation of children in a social setting, such as a school or nursery, where their difficulties are more likely to be highlighted among normal functioning peers" (p. 24).

Another problem with accurate diagnosis of autism is that often the behavioural troubles exhibited by the child may be attributed to poor parenting. According to Aarons and Gittens (1992) the problems:

> are seen as the outcome of a breakdown in family dynamics, rather than symptomatic of an underlying disorder. This misinterpretation of the causes of the child's presenting behavior has brought considerable distress to many parents who feel that they are being blamed undeservedly for their child's problems. Yet they are unable to find an alternative explanation which would make better sense. (p. 25)

What, then, can be done to accurately and consistently diagnose and separate autism from other handicapping conditions? Aarons and Gittens (1992) offer a model for diagnosis that includes "looking at the whole child and evaluating his/her individual difficulties as well as possible abilities and skills" (p. 30). These authors suggest that professionals in the field look at several broad areas such as, medical history, early development, appearance, movement, attention control, sensory function, play skills, basic concept development, sequencing skills and musical skills.

AETIOLOGY

Frith (1989) is very firm in her belief that autism, "undoubtedly...has a biological cause and is the consequence of organic dysfunction" (p. 68). Sacks (1995) is also a firm believer in a biological cause for autism. Sacks, a neurologist, has speculated that the aetiology may be genetic in some cases. Autism may also be associated "in the affected individual or the family, with other genetic disorders, such as dyslexia, attention deficit disorder, obsessive-compulsive disorder, or Tourette's syndrome" (Sacks, 1995, p. 248).

Autism may also be acquired. For example, a number of babies exposed to the rubella virus during the 1960's later developed autism. They began to develop normally, then suddenly lost both language and social skills between the ages of two to four (Sacks, 1995).

Autism could also be caused by a metabolic disorder such as phenylketonuria (PKU), or a "mechanical" (Sacks, 1995, p. 248) disorder such as hydrocephalus.

Temple Grandin, a person with autism, spoke to Oliver Sacks (1995) about her thoughts regarding the aetiology of autism. Grandin believes that parts of her brain are highly developed and are very productive, for example, the part that controls visualisation. She believes that other parts of her brain are poorly developed, such as the part that controls verbalisation. Grandin believes this to be true for most people with autism:

> she ascribes this to a defect in her cerebellum, the fact that (as an MRI has shown) it is below normal size in her. She believes such cerebellar defects are significant in autism, though scientific opinion is divided on this. (Sacks, 1995, p. 289)

Grandin questions Frith's (1989) theory of mind as a causal explanation for autism. Grandin herself:

> faces , almost everyday, extreme variations, from over-response to nonresponse, in her own sensory system, which cannot be explained, she feels, in terms of "theory of mind." She herself was already asocial at the age of six months and stiffened in her mother's arms at this time, and such reactions, common in autism, she also finds inexplicable in terms of theory of mind. (Sacks, 1995, p. 290 - 291)

Kauffman (1993) notes in his review of the literature, that "autism...is known to involve a dysfunction of the central nervous system, but the nature of the dysfunction, remains unknown (p. 181). Tsai and Ghaziuddin (1992) outline several possible causes of autism, including genetic factors, obstetric and postnatal factors, neurological factors, and immunological factors. Although

there seems to be no consensus as to one single cause or aetiology for autism, one thing is clear from the research: "autism is a heterogeneous behavioral disorder with several different but distinct subtypes" (Tsai & Ghaziuddin, 1992, p. 67).

Social Interactions and Impairments

Definitions

Social skills and behaviours can be defined as "the ability to communicate effectively with people in social and work situations" (Gordon & Lawton, 1984, p. 179). Social competence can be thought of as "the progressive capacity for looking after oneself which leads to ultimate independence as an adult" (Van Osdol, 1972, p. 35).

J. is a four year old boy with autism. J. can identify his parent's friends, not by name, but by licence plate number, car make and colour. J. will approach an adult friend of his parents and simply begin listing vehicle characteristics - make, model, colour, and plate number, without prefacing the conversation with a "hello" or "hi". H. is always correct when matching vehicles to people. J. otherwise does not possess any meaningful social or communicative speech.

Lorna Wing defines autism as being a "triad of impairments of social interaction, communication, and imagination, together with a marked preference for a rigid, repetitive pattern of activities" (Wing, 1992, p. 129). Wing further describes the social interaction impairment as having three sub-categories. One type of social impairment involves children who do not seem interested in other people at all. They may accept food and drink from people in their environment, but seem not to view the person as a person, but merely as a tool for receiving basic need requirements. They are often described as aloof.

A second type of social impairment that some autistic children may have is described by Wing as being "socially passive" (Wing, 1992, p. 132). Children with this type of impairment do not usually initiate social interactions, but may respond when others do the initiating. They may also copy other children's movements and behaviours without really understanding the reasons for the behaviours in the first place.

A third type of social impairment involving children with autism are those who may initiate interactions with others, but these interactions are usually bizarre and nonsensical. These children may only talk about a particular subject or repeat phrases over and over. They may be considered odd by others.

Characteristics

Children with autism may display any of these characteristics in different situations. Generally, however, by the age of five or six, a child with autism will show more tendencies toward one of the subcategories of social impairments than another.

Children with high-functioning autism also display these characteristics of social impairments. Usually, such children display characteristics from the passive or odd subcategories rather than from the aloof category. It should be noted that children with autism neither *lack* the ability to feel emotions nor do they *lack* the desire to interact with others. It seems to be more a problem of "an

overwhelming difficulty in acquiring and understanding the multitudinous rules of social life and developing empathy with others" (Wing, 1992, p. 131).

Children with autism view social interactions differently because of their trouble understanding social rules and expectations. Some researchers in this field feel that children with autism interpret each social interaction separately. They can not generalise from one situation to another similar situation. The children are often "left with a series of fragmented social experiences that are manifested as ritualized, context-specific behaviors" (Quill, 1995, p. 167). The goal of any treatment program, therefore, is to make "social interactions more predictable and better understood" (p. 163).

K. is an eight year old boy with autism. He remembered the order of presentation of a psychological test given one year previously. He could remember the order of the subtests he was previously given by a different psychologist. He told his current psychologist that she was not proceeding in the correct order when she gave him the same test, but in a slightly different order.

School Problems

High-functioning children with autism encounter problems in school settings that differ from those who are not high-functioning. Because of their near-average, average, or superior intelligence levels, they may not receive many special services in a school setting. These children may be left on their own to cope the best they can with the complex social expectations demanded in a school environment. They may have trouble attending to tasks and may perseverate on their own obsessions during class time. They may be ridiculed by classmates because of their odd behaviours and mannerisms. Some high-

functioning autistic children, however, have special interests or obsessions that can lead to relatively successful interactions. For example, some autistic children excel in music or chess or math games. These skills can be utilised by school personnel to facilitate appropriate social interactions (Wing, 1992).

The Normal Development of Play

Why Play is Important

The ability to play promotes social skill growth, among other things, for young children. Play is fun for most children, but more importantly, it is how they learn. While engaging in a variety of play situations, children learn how to solve problems, fine tune their fine and gross motor skills, learn communication skills and a diversity of social behaviours (Stone & La Greca, 1986, p. 37).

It is important to know how typical children develop play skills and how they interact with peers during play periods (Stone & La Greca, 1986, p. 36). This information can be used to compare how children with autism differ from typical children in this area and "to provide a framework of normally occurring social skills that could then be utilized in intervention efforts with autistic children" (p.36).

Vygotsky, a Russian psychologist of the 1920's and 30's, clearly felt that through play, children develop many skills, including:

> the creation of voluntary intentions, and the formation of real-life plans and volitional motives - all appear in play and make it the highest level of pre-school development...in this sense can play be considered a leading activity that determines the child's development. (Cole, et al., 1978, p.102 -103)

Vygotsky (Cole, et al., 1978) demonstrates that learning does occur during play by applying his zone of proximal development concept. He states that in play a child is always operating at a level above his chronological age. In play, Vygotsky observes, a child acts out skills beyond his everyday, routine skills. This states Vygotsky, was when learning took place.

Initial Play Development

During a child's first year of life, the purpose of play is to develop knowledge about self and significant others in the child's environment. From birth to around age six months, infants are typically passive interactants in the play process. They may show appreciation towards the play activities initiated by parents or others in their environment by smiling and cooing; however, they do not usually initiate the activities themselves. From age six months to one year, babies will begin to share interests with familiar people in their surroundings. They may initiate familiar play routines, smile and coo to get attention and tentatively begin the sharing process with toys (Wolfberg, 1995, Stone & La Greca, 1986).

L. is a two year old boy with autism. Right now L. is very attached to a jar of marbles. He takes them everywhere, and has never put a marble into his mouth. The "object" L. is attached to changes from time to time, however, he has something beside him at all times. L. even takes his special "object" to bed with him every night.

An interesting study done by Lee in 1973 (as cited in Stone & La Greca, 1986) looked at peer preferences of very young children. Lee studied infants

and toddlers between the ages of eight to ten months old. He observed them in their typical day-care interactions and he compared:

> one infant who was consistently approached by others...to a child who was avoided. The preferred infant was observed to be more responsive to social contacts and engaged in more reciprocal interactions with the other infants. Thus, even at very early ages, the behavioral dimensions of "responsiveness to others" and "reciprocity" in social interactions appear to be important indicators of a child's likability. (p. 38)

Pretend Play

Starting around a child's first birthday, pretend play begins to emerge. Pretend play is the ability to imitate adult behaviours in different contexts (Wallach & Miller, 1988). Between the ages of one and four, a child will play "mommy" or "daddy" or imitate the play behaviours of older siblings and other children. Children at this stage spend time watching how other children play, imitate the actions of other children and engage in parallel play with other children (Wolfberg, 1995).

There are several social behaviours that develop in the preschool years that facilitate positive play interactions between children. Some of these positive behaviours include such things as "the frequency of smiling and laughing... sharing and co-operative acts....good eye contact and physical proximity" (Stone & La Greca, 1986, p. 39).

Co-operative Play

Gradually, co-operative play begins to develop, usually around the age of four. Co-operative play, that is, sustained play between two or more children, is

a complex process. Children must understand the concept of taking on different roles; they must adapt their movements and voices to fit the play situation; and they have to be able to talk about how to play with each other. As well, children must understand rules regarding turn-taking. For example, children will typically give each other directions about what action will happen or when to change play scenarios altogether. These complex interactions can be thought of as "metaplay" (Wallach & Miller, 1988, p. 19).

Older Children at Play

Vygoysky (Cole, et., 1978) feels that the nature of play changes over time. Play starts out as a mere representation of real life. The young child simply remembers a sequence of events and acts them out. Then play begins to become more abstract; the child is able to separate the meaning from the object. Vygotsky felt that play was not as serious for the school-age child, primarily because school occupies so much of his/her time. However, others do not agree with this sentiment. According to Wolfberg (1995):

M. is a boy with autism who is an escape artist. M. is ten years old and is non-verbal. On the second day of school, he disappeared from the school yard during a physical education class. School personnel looked all over the school grounds and building, but when M. was not found, the police were called. M. was found downtown, approximately ten kilometres from the school. He was found by the security guards at a large department store, in the TV section. No one is sure how M. crossed the streets safely on his own, as this is not a skill he has successfully demonstrated before.

> games and sports are the dominant play activities formally available to children in school and recreation programs while occasions for make-believe play activities are rare. Nevertheless, the impulse to pretend in

> middle childhood continues, particularly when opportunities for imaginative activities are made available. (p. 200)

Children in elementary school display quite sophisticated play skills. The sharing and co-operation skills that they learned in early childhood continue to develop and are important for successful peer relationships. Children at this age also become more responsive to their play partner's needs and are more likely to change the play situation to suit their partner's desires than younger children (Stone & La Greca, 1986, p. 41). School-age children also learn some new play and social skills such as how to "enter ongoing peer activities and to extend invitations to peers" (p.41).

According to Vygotsky (Cole, et al., 1978), play changes again, as the child reaches adolescence. The more mature play of an adolescent helps to develop abstract thought; ideas and concepts that had not been considered important before now become dominant.

Many researchers agree that play contains several components that can be found in various play situations and across age groups (Wolfberg, 1995). These characteristics include the descriptions that: "Play is *pleasurable*....Play involves *active engagement* in a freely chosen

activity....Play is *intrinsically motivated*....Play includes *flexibility*....Play frequently has a *nonliteral* or 'as if' quality" (p. 196).

Autism and the Development of Play

Characteristics

Children with autism have much different play routines and play characteristics as compared with the descriptions of typical children's play (Stone & La Greca, 1986). All children with autism are different and each child will display his or her own individual play habits, (or lack of play habits). There are, however, some common features of the play of children with autism that can be described. Wolfberg (1995) has researched the literature and summarises the characteristics in this way:

> Overall, they lack the spontaneous and flexible qualities characteristic of play....When left to their own devices, they commonly impose rigid and perseverative play routines....Once established, many children with autism express considerable resistance to a play routine being disrupted....they tend to exhibit less time and diversity in advanced play skills, fewer functional play sequences, and fewer symbolic play acts related to dolls and others....Language, gestures, and sound effects that are indicative of imagination are rarely spontaneously incorporated... they may repeatedly construct and reconstruct the same intricate layout of buildings and roadways but never actually incorporate novel elements into the construction....children with autism tend to remain on the fringes of peer groups. (p. 201 - 203)

Children with autism do occasionally attempt to interact with peers; however, "the limited contact they have is generally negative in nature" (Stone & La Greca, 1986, p. 46). The reasons for this may be found in our current understanding of normal social skills development. Skills such as "mutual visual regard, mutual object manipulation, and imitation" (Stone & LaGreca, 1986,

p.46), which are needed in order to play successfully with others, begin to develop in very young children. Other skills that facilitate successful peer interactions are establishing and maintaining eye contact and playing in close physical proximity to other children. Children with autism seem to lack these skills right from the beginning of life.

N. is a two year old boy with autism. N. is always full of energy and loves to climb anything and everything. One day, when his mother had a visitor in the house, N. climbed to the top of the wall unit, which was bolted to the wall, and watched the visit from the top shelf.

Symbolic Play

In 1993, Jarrold, Boucher and Smith reviewed the current research into the symbolic play of autistic children. They found several problems with the research. The first problem they discussed concerned terminology. It seems that different researchers use different terms. This makes it unclear whether each researcher is actually studying the same phenomena and confuses the issue when conclusions are drawn by comparisons between studies.

Another problem that Jarrold et al. (1993) found was methodological in nature. The authors concluded from their review that many researchers failed to "include control groups or to match control groups adequately" (p. 295). The authors stated that these shortcomings lead to limitations in drawing conclusions about "any *relative impairment* in the symbolic play of autistic children" (p. 284).

The authors did not dwell only on the negative aspects of the research. They outlined some firm conclusions that can be found in the research as well.

They stated that the research appeared to point to the fact that all types of play was impaired in similar ways in autistic children. That is, autistic children do not typically excel at one type of play over another type of play. They also concluded from the review that the play of autistic children seemed to be impaired in all play situations.

Jarrold et al. (1993) concluded their review by discussing the uneven language abilities characteristic of autistic children and the effect this may have on studies into play. The authors cautioned that "careful consideration must be given to the methods used to control for the effects of language ability" (p. 303).

Normal Language and Communication Development

The Importance of Language

It is often difficult to separate communication skills from social and play skills. The development and emergence of one affects the development and emergence of all others. In fact, "communication has been cited as the foundation of social interaction" (Stone & La Greca, 1986, p. 47). As in the development of play skills, it is important to look at the development of communication in typical children. Then, the language development of autistic

children, (or lack of development) can be looked at in relation to social skill development.

Social Language

The unfolding of a human creature is a truly wondrous event, especially when one looks at language development. Young infants and toddlers not only learn and use the semantically, morphologically, and syntactically correct aspects of language, but they must also:

> learn the complex rules of the appropriate social use of language, what certain scholars have called communicative competence. These rules include, for example, the greetings that are to be used, the "taboo" words, the polite forms of address, the various styles that are appropriate to different situations, and so forth. (Fromkin & Rodman, 1993, p.394)

One of the first things that a baby learns about language is how to get the attention of a significant adult in his/her environment. It has been found that "by the age of 9 to 10 months, infants...initiate communication through eye contact, physical gestures, and vocalisations" (Stone & La Greca, 1986, p. 48). From the ages of two to three, the child's oral language skills increase dramatically. However, the young child still prefers to use gestures and eye contact as the predominant means of initiating communication (p. 48).

Preschool Language

As the child enters toddlerhood, many new communication skills emerge. For example, it has been found that preschoolers will "adapt their speech in response to listener feedback as well as to specific personal characteristics

(e.g., age, cognitive level, linguistic level) of listeners" (Stone & La Greca, 1986, p. 50). Preschoolers will also adapt their responses to feedback from listeners; will ask relevant questions; and will use language to organise play activities.

O. is an eleven year old girl with autism, who seldom talks. She likes to work behind a divider at school, so that no one can see her. One day, while behind a divider, her teacher yawned. The teacher knew no one had seen her do this, and that O. was hidden from view behind the divider. However, O. apparently heard the yawn and commented through the divider, "You tired, teacher?"

School-age Children

School-age children develop and refine their existing communication skills, as well as develop more sophisticated skills. School-age children become more effective at using and 'reading' nonverbal communications. They also are better at both speaking and listening in general; they "become more adept at eliciting attention and feedback from listeners, and are able to respond appropriately to explicit verbal feedback (such as questions) and adapt their speech to the listener's needs" (Stone & La Greca, 1986, p. 52).

School-age children also use their language and communication skills for reasons that differ from younger children. Children at this stage use language to initiate play acts, to resolve conflicts, and as an activity in itself; "social activity becomes important in its own right as a shared peer activity" (Stone & La Greca, 1986, p. 52).

Autism and the Development of Communication Skills

Just as children with autism differ from other children in many aspects of development, so do they differ in language and communication skills. Children with autism "are typically late beginning to speak, and approximately half never develop meaningful speech at all. Those who do often demonstrate abnormalities in usage as well as delivery" (Stone & La Greca, 1986, p. 53).

P. is a nineteen year old young man with autism. When upset, P. will yell "Call 911 - call 911!", as he did one day in a grocery store when he temporarily lost sight of his mother. On another occasion, P. was with his class from school, on a hayride in the country. The driver of the wagon was driving dangerously fast across the bumpy fields, causing everyone on the wagon to be bounced around and all were somewhat frightened. P. kept yelling over and over again, "Call 911 - call 911", until the hayride ended.

We know that infants and toddlers actively seek attention of others through the use of eye contact and gestures. However, children with autism usually fail to develop either of these behaviours, which then leaves them at risk for not developing higher order skills. For those people with autism that do develop speech and language, it is often non-communicative in nature. That is, "conversation is often restricted to the use of stereotyped phrases and the exchange of concrete pieces of information about limited topics of interest" (Stone & La Greca, 1986, p. 53).

One can see from the literature regarding language and communication development, that autistic children's impairment in these areas lead to, and are

undoubtedly connected to, their impairments in other areas such as social skills and play skills.

Asperger's Syndrome

Hans Asperger was an Austrian psychiatrist, who first described the condition we now know as Asperger's syndrome (AS) in a 1943 thesis. Asperger used the term "autism" to describe his patients. This was the same year that Kanner published his landmark article using the same term. Asperger's work, however, remained unpublished until 1944, and untranslated for some time after that. Asperger's work has only become prominent in the last few years.

Definition

Frith (1991) defines Asperger's syndrome (AS) being made up of people who:

> tend to speak fluently by the time they are five, even if their language development was slow to begin with, and even if it is noticeably odd in its use for communication...often become quite interested in other people and thus belie the stereotype of the aloof and withdrawn child....remain socially inept in their approaches and interactions. (p. 3 - 4)

Frith (1991) describes people with AS in the following ways: many adults with AS can function quite well as far as independent living and careers are concerned. However, they often appear different and awkward. Obsessions may dominate their lives and topics of conversation. They may appear blunt, robot-like or cold-hearted. They may engage in stereotypical behaviours when experiencing stress, similar to lower-functioning people with autism. People with AS have reported strange sensory reactions, such as hypo- or

hyper- sensitivity to sounds or to the texture of clothes.

AS is now included in the Diagnostic and Statistical Manual of Mental Disorders - 4th ed (1994). It is called Asperger's Disorder and includes the diagnostic features of "severe and sustained impairment in social interaction...the development of restricted, repetitive patterns of behavior, interests and activities" (p. 75). Also included as characteristics of the disorder are delayed motor development and clumsiness. The Manual states that the disorder seems to be more common in boys and than in girls and usually has " a somewhat later onset than Autistic Disorder, or at least to be recognized somewhat later" (p. 76). A more detailed description of the diagnostic criteria used in the Manual can be found in Appendix B.

The term 'high-functioning' is often used in conjunction with AS. There is confusion in the literature regarding the use of these two terms and exactly what is meant by each. Szatmari, Bartolucci, & Bremner (1989) suggest that there is no difference between the two terms. They state that there are some differences between the two populations "in terms of social responsiveness, communication and restricted range of activities" (p. 717), but these differences likely "reflect severity of the disorder rather than a distinct disorder" (p 717). The authors go on to say that "it may be best to think of AS as a mild form of HFA [high

functioning autism]" (p.717). For the purposes of this handbook, the terms Asperger's syndrome (AS) and high functioning autism will used interchangeably.

High-functioning autism, or AS, usually refers to children with autism who have an IQ score over 70; this "covers close to 20% of the autistic population" (Levy, 1988, p.2). Frith (1991) considers AS a subcategory of autism. She sees it as being on the same continuum as autism. Szatmari, Bremner, & Nagy (1989) hold a similar view, that AS is "on the autistic spectrum" (p. 559). These authors suggest that AS and autism "share a common aetiology but differ primarily on severity" (p. 554). Frith (1989) states that AS should "be reserved for the rare intelligent and highly verbal, near-normal autistic child" (p. 8).

Characteristics

Some of the characteristics of the condition, taken from Asperger's own working files, and still considered in diagnosis today, are such things as:

- the condition being more common in boys than girls,
- being not identified in infancy, but usually after age 3,
- walking may be delayed,
- speech may occur at normal developmental age, with proper grammar eventually developing, however, there may likely be evidence of pronoun reversals,
- language tending not to be used for communication purposes,
- having limited gestures and limited facial expressions, and limited understanding of others' gestures and facial expression,

- possessing abnormal vocal intonation,
- lacking in understanding of social rules and behaviours,
- having clumsy and uncoordinated movements, which may affect printing and drawing skills,
- may have good rote memory abilities,
- may develop an obsessive interest in one or two topics,
- may be teased because of eccentricities,
- may become aware that they are different than other people and may seek ways to become more normal-like (Frith, 1991).

Q. is a four year old boy with Asperger's syndrome. One day he was playing with a small mirror at school. He wanted his teacher to look at the little telephone in the mirror. The teacher could not understand where this telephone was, but Q. insisted that it was in the mirror. Finally, the teacher figured it out. There was a small telephone sticker on the ceiling above them which the teacher had not noticed before, but obviously, Q. had. Q. then turned the mirror over to the magnification side and told his teacher to now look at the big telephone. Q. kept flipping the mirror from one side to the other and was quite excited about the telephone that changed size.

Since Asperger's work has come to be known, others in the field (Wing, 1981; Levy, 1988) have added to the list of distinguishing characteristics of people with AS.

These characteristics include such things as:

- reduction or complete absence of babbling in infancy and reduction of gestures, smiles and laughter in early childhood,

- may not have shown or shared toys with parents and significant others in environment,
- lack of ability to engage in pretend play with peers,
- if play skills do exist, they may lack creativity and flexibility,
- may relate appropriately with parents and other adults, but not with peers,
- exhibits a large vocabulary; may know the meanings of difficult and obscure words, while not comprehending common, everyday words,
- difficulty with descriptive language and conversational turn-taking,
- may ask repetitive questions with little concern about the actual answers to the questions,
- very concrete and literal, "seldom use colloquialisms, such as 'yea' for 'yes' or idioms, such as 'beating around the bush' " (Levy, 1988, p.4),
- often display uneven academic skills,
- lacks common sense,
- many can be employed successfully in adulthood,
- may be at risk for psychiatric illnesses in adulthood,
- may be super-sensitive to criticism by others.

There are certain characteristics of the children that Asperger described that differ from Kanner's descriptions of children he labelled as autistic. Asperger described children who developed speech and language by the time

they entered school. They typically had large vocabularies and demonstrated good grammatical skills. They tended to seek the company of peers, but did not know how to do so appropriately. Asperger also described these children as having original thoughts and strange obsessions (Frith, 1991, p. 96 -97).

In contrast, Kanner (1943, 1944) described children who typically did not speak or, if they did speak, they possessed a limited vocabulary. And, of course, the children that Kanner described did not seek the company of peers; in fact they were characterised by "an extreme autistic aloneness that, whenever possible, disregards, ignores, shuts out anything that comes to the child from the outside (Kanner, 1943, p. 242).

Grandin (1995), herself an individual with AS, has described some common characteristics that people with her condition share. She stated that they "tend to be good at visual thinking" (p. 47) and may be consumed with anxiety and nervousness much of the time. Grandin said that the "anxiety felt like a constant state of stage fright, and caused me to resist changes in routine because changes made me more anxious" (p. 48).

McLennan, Lord and Schopler (1993) studied a small group of high-functioning people with autism to see of there were any differences of behaviours between males and females. Predictably, because of similar studies

of other populations, they found that the males were more handicapped than the females, at the younger age level. Specifically, the younger females McLennan et al. studied were better able to communicate effectively and better able to initiate social interactions than were the males. This trend was reversed, however, for older subjects; the males were seen as better communicators in adolescence and young adulthood. The authors offer a reason for this. They speculate that the adolescent autistic girl who wants to interact with her normal peers must typically have good communication and interaction skills. (Normally developing teenage girls' social experiences consists of talking and other social interactions.) The autistic girl's weaknesses are highlighted during these encounters. However, adolescent boys' interactions tend to revolve around playing sports or watching sports on TV, etc. The autistic teenage boy does not need as refined communication and social skills for these interactions.

R. is a non-verbal, two year old boy with autism. He is an accomplished escape artist. One night he piled up an assortment of objects, undid the latch at the top of his bedroom door, and ran away. The police found him on a busy street in the neighbourhood.

Prognosis

The prognosis for high-functioning children can be confusing for parents and caregivers. Some researchers report fairly grim statistics regarding adult adjustment of high-functioning people. Wing (1981), for example, reports that of 18 people in her study diagnosed with AS:

> 4 had an affective illness; 4 had become increasingly odd and withdrawn,...1 had psychosis with delusions and hallucinations...1 had an episode of catatonic stupor; 1 had bizarre behavior and an unconfirmed diagnosis of schizophrenia; and 2 had bizarre behavior, but no

> diagnosable psychiatric illness. Two...had attempted suicide and 1 had talked of doing so. The rest were referred because of their problems in coping with the demands of adult life. (p. 118)

On the other hand, Szatmari, Bartolucci, Bremner, Bond, & Rich (1989) offer a more positive prognosis. They state that the results of their work:

> indicate that the grim prognosis often given to parents of young autistic children may not be universally warranted. A small percentage of nonretarded autistic children (perhaps those with good non-verbal problem-solving skills) can be expected to recover to a substantial degree. It may take many years to occur, and the recovery may not always be complete, but substantial improvement does occur. (p. 224)

Szatmari, Bartolucci, Bremner, Bond, and Rich (1989) provide some details of the types of families included in their study. They stress that they cannot prove the relationship between the family characteristics and the positive prognosis of their subjects; they simply wanted to report the anecdotal evidence they gathered. They state that the autistic subjects involved in the study came from middle-to high-income backgrounds. They typically had parents, specifically, mothers, who were vocal advocates for services to meet their children's needs. The authors state that the "parents worked very hard for their autistic children and often made major sacrifices in terms of their own family lives" (p. 222).

Problems Encountered by People with Asperger's Syndrome

A common problem for people with AS is the expectations that others have of them. "The more capable an autistic person appears to be, the more likely it is that he will be expected to manage his own affairs without supervision (Frith, 1991, p. 195). However, this is not always possible. People with AS can get confused and frustrated by these normal, everyday expectations.

Another problem, as described by Wing (1992) deals with society's perceptions of high-functioning autistic people. One should not misinterpret the social awkwardness of high-functioning people with AS to mean that they do not want to have friends. What seems to be happening is "that their lack of understanding of the subtle rules of social interaction and communication" (p. 40) prevents them from forming or even initiating a relationship.

Grandin (1992) makes an interesting observation about the family histories of high-functioning individuals with autism. From her review of the literature and from talking to several families in which autism occurs, she has found that "Family histories of high-functioning autistics often contain giftedness, anxiety or panic disorder, depression, food allergies, and learning disorders" (p. 113).

Hyperlexia

Definitions and Characteristics

In the past there has been confusion as to how to define hyperlexia. In 1976, Elliott and Needleman reported that there was much confusion in the literature regarding the definition and diagnosis of hyperlexia. However, one characteristic was clearly evident in the literature; "The unique characteristic of these children... is their supernormal sensitivity to

visual linguistic symbols. Production of speech sounds...may be non-existent or severely retarded, but the unusual attraction to written symbols is common to all" (p. 346). Elliott and Needleman further report that the literature, up to that time, was also clear about another characteristic of hyperlexia; "the interest in written language and ability to read simply 'appeared' upon exposure to written material, much as spoken language appears after exposure, without the necessity for explicit instruction" (p. 348).

Some definitions of hyperlexia have included all children who read above their comprehension level. Healy (1982) argues that "many school children exhibit such discrepancies; to label them all hyperlexic would be to miss the essential features of this unique condition" (p. 334). Healy reports in her 1982 study that certain critical features must be present in order to diagnose hyperlexia. These include:

> children who spontaneously read words before age 5 despite disordered linguistic, cognitive, and interpersonal development. An intense and preoccupying interest in graphic symbols replaces other developmentally appropriate activities for these children....such children may or may not continue to develop phenomenal word-calling abilities, although word recognition skills remain well above expectations based on other cognitive or linguistic abilities. Comprehension on both listening and reading tasks is impaired. While it may be present for literal units, it breaks down when abstract or organizational strategies are required to gain meaning. (p. 334)

Aaron (1989) defines hyperlexia a "a reading disorder caused by severe deficiencies in comprehension accompanied by extraordinary facility in decoding that has developed spontaneously and at a very young age" (p. 158). Levy (1988) has developed a similar definition, saying that some high-functioning individuals with autism may have very advanced reading skills for their age, but

their comprehension does not match their reading level. Other characteristics of the hyperlexic include: proficient spelling of a limited number of words; precocious readers of pseudowords; and, may demonstrate understanding of simple sentences, however, they do extremely poorly on comprehension tasks of complex sentences, stories and passages (Aaron, 1989).

S. is a two and a half year old boy with autism. S. began to read at a very young age. He can read brand names on household products and common logos found in the community. S. can remember and recite commercials he hears on the television. S. can match the commercials to the proper products on the store shelf. He does this by singing or repeating the commercial while pointing to the product or holding the product in his hand.

Other Characteristics

Children with hyperlexia typically begin to develop language normally, but then may stop speaking at around age 18 months. Other language deficits include perceiving language differently than normally developing children. For example, "they perceive language in phrase chunks rather than in words or morphemes, and they have difficulty comprehending new utterances as well as generating new utterances of their own" (Kupperman & Bligh, p. 1). The utterances of hyperlexic children often contain quoted dialogues and commercials they have witnessed on television or the radio (Kupperman & Bligh).

These children may also "have an intense need for order,ritual, and routine. Many also react strongly to touch, smells, and loud noises" (Moses, 1994, p. 25). They may exhibit non-compliance, anxiety, have difficulty with

transitions and with peer interactions (Kupperman & Bligh).

Prognosis

The prognosis for hyperlexic children is usually positive. They often have excellent memories and good imaginations which enable them to do well in school (Moss, 1994).

T. is an eight year old boy with autism. T. could read the test instructions upside down, while being given a psychological assessment.

Working with children diagnosed with Asperger's Syndrome can be rewarding, as well as frustrating. Because most children with Asperger's Syndrome often possess the ability to communicate verbally, the opportunities for interaction are typically greater than with children who function at the lower end of the autism continuum. Because children with Asperger's syndrome, however, usually appear like typical children, many people misinterpret their abilities and expect normal academic and social functioning of them. In fact, we know that these children do not always do well academically, and are often very handicapped socially.

Autism: Relationship to Mental Retardation

Definition

The Diagnostic and Statistical Manual of Mental Disorders (4th ed.) (1994) defines mental retardation quite simply as comprising of three components. A person must have a significantly sub-average IQ, show significant impairments of adaptive behaviours, and present with these two characteristics before the age of 18. See Appendix C for a more detailed list of the criteria used in

diagnosing mental retardation.

U. is a four year old boy with autism. He knows all the alphabet letters and can read some words in isolation. He can read all the names of the children in his preschool classroom. He can read whole books that he brings from home to share with his teacher and class.

Comorbidity

"Approximately 75% of children with autistic disorder function at a retarded level...commonly in the moderate range (IQ 35 - 50) (American Psychiatric Association, 1994, p. 67).

This statistic fits with the information discussed previously regarding high-functioning autism. Earlier in Chapter 1, it was stated that approximately 20% of the autistic population would be considered high-functioning (Levy, 1988, p.2). With the remaining percentage, anywhere from 70 - 80%, autism would co-exist with mental retardation. Frith (1991) also agrees with the above figure, saying that autism can occur at any intelligence level, "although the majority of those afflicted are mentally retarded, more than half being in the severely retarded range, even though they may have isolated skills at a higher level (p. 108).

Myths of the "Hidden Genius"

Frith (1989) discounts the idea that because an autistic person may excel in one specific area, for example, mathematical computations, but remains un-testable in other area, that this indicates a generally high or average IQ level. Frith states that the low IQ scores obtained by many autistic people reflect their true functioning level. Frith further explains that in the past the:

> IQ was overestimated and misleading if only successfully completed tests were taken into account. Unfortunately this is often done in practice, so that the myth of the secretly intelligent autistic child persists. In particular, children who are found to be untestable on many subtests but score quite highly on one test tend to be credited with potential they do not have. It is necessary to take into account of the whole range of performance in order to make accurate predictions. (p. 83 - 84)

Olley (1992) discusses this idea of the hidden genius of the autistic child as stemming from Kanner's original descriptions of his autistic clients. Kanner (1943, 1944) felt that his autistic patients had good intellectual potential. Olley states that the effects of this notion has been far-ranging:

V. is a three and a half year old girl with autism. V. engages in pica behaviour; that is, she eats or tries to eat non-food items. One day V. inserted a one-metre cord from a tape-recorder into her throat and stomach. She pushed it in and pulled it out very smoothly, with no gagging or other physical response. When V. removed the cord, a large saliva bubble had formed with which V. then played.

> This myth of the autistic child as latent genius has endured and caused great distress for family members and teachers who have nearly always failed to find the key to unlock the alleged genius....research has consistently found about 80% of people with autism to function in the mentally retarded range...The remaining 20% show social, language, and other learning problems that seriously impair their adaptive behaviour. Kanner's optimism about the intellectual potential of people with autism was sadly unfounded. (p. 4)

Kauffman (1993) and Tsai & Ghaziuddin (1992) would agree with the above views on the true intellectual ability of persons with autism. Kauffman states that the "average IQ is probably around 50, with the vast majority of students falling between about 35 and about 70" (p. 228). Figure 1 shows the hypothetical distribution of IQ levels in three different populations. Tsai and Ghaziuddin state that three out of every four autistic persons also have mental

retardation, which supports their idea that autism has a biological basis, not a psychological basis (p. 53). Furthermore, an autistic child's IQ level may drop if he or she does not develop useful language skills by late childhood (Frith, 1989; Kauffman, 1993).

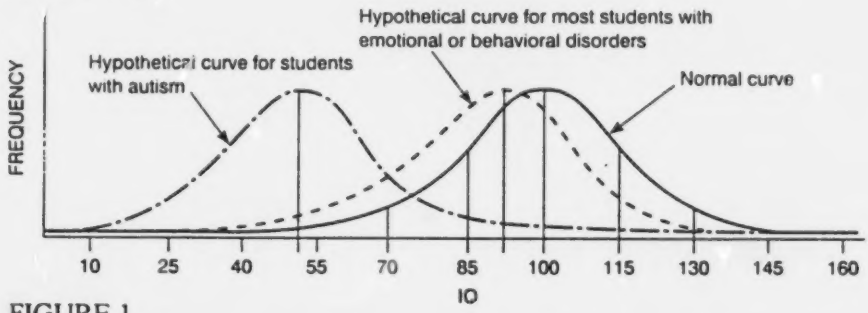

FIGURE 1
Hypothetical frequency distributions of IQ for most students with emotional or behavioural disorders and students with autism as compared to a normal frequency distribution. Taken from Kauffman, 1993, p. 227.

Certain characteristics are thought to be predictive of higher intellectual levels (DeMeyer, Barton, Alpern, Kimberlin, Allen, Yang, & Steele, 1974). These authors argue that "children with the capacity to relate emotionally have the highest adaptive and verbal abilities" (p. 51). These authors also contest the argument that autistic children are un-testable. They suggest that autistic children are only un-testable when inappropriate tools are used. DeMeyer et al. go on to say that "most autistic children are testable when test items within their range of competence are used; often these must be infant test items" (p. 58).

Divergent Viewpoints

Rimland (1964) argues that autism does not always occur in association with mental retardation. He gave as a reason for this the fact that many individuals with autism appear normal-looking. They do not have the vacant look

that many people with mental retardation display, rather, "they appear always to be concentrating on something else" (p. 10).

Rimland (1964) also found that a characteristic that separates autism from mental retardation is the exceptional musical ability that is sometimes seen in autistic children, which is not often seen in children with mental retardation. However, Rimland does go on to state that "many autistic children do eventually become institutionalised as mentally deficient" (p. 13). This, of course, was a much more common practice when Rimland wrote this, than is practised today.

W. is a fifteen year old boy with autism. W. can play a song on the piano, after only listening to it once on the radio or hearing someone sing it only once. . cannot read music.

Park (1982) had the opportunity to observe mentally retarded children who were in the same classroom as her daughter, Elly. To Park, there were vast differences between her autistic daughter and the mentally retarded children. Park observes that the mentally retarded children were able to communicate and behave in ways that somewhat resembled normal children. Her daughter, Elly, who could complete sophisticated math questions, could not participate in the social world of her peers. Park comments that the mentally retarded children were "light-years ahead of her in adequacy and function" (p. 260). So, Park, who did not deny that her autistic daughter was mentally retarded as well, felt that there was a fundamental difference between someone who was mentally retarded only, and someone who had autism as well.

Prognosis

DeMeyer et al. (1974) found that autistic children with an IQ score over 50 responded better to educational treatment and remediation. These authors stress the importance of providing appropriate educational services "geared to their individual assets and liabilities because some children in this group have a chance for borderline or even normal functioning" (p. 59).

Behaviour Modification with Autistic Children

Lovaas' Study

This section of the chapter will look at the literature regarding the use of behaviour modification techniques with people who have autism. One technique referred to often in this area was delineated in a study carried out by Lovaas (1987). His study lasted 15 years. Lovaas claims he can help autistic children to recover from this disorder. Lovaas states that "the most promising treatment for autistic persons is behaviour modification as derived from modern learning theory" (p. 3). Lovaas states that the positive aspects using behaviour modification techniques with autistic children includes being able to build complex skills such as language, and, being able to reduce aggressive behaviours.

X. is a thirteen year old boy with autism. X. is self-abusive. He bangs his head with his hand and bangs his head on his wheelchair tray. X. now has eye cataracts as a result of this abuse.

Characteristics of the Experimental Children

The children included in Lovaas' (1987) study were all considered to be classically autistic before treatment. Ten of the children in the experimental

group scored in the severely retarded range on an IQ measure; seven scored in the moderately retarded and two scored within the normal range. The children did not possess any pretend play skills; 11 were mute; seven were echolalic and one possessed limited communication skills. All the children in the study were younger than four years of age and exhibited emotional detachment, social isolation and excessive rituals.

Methods of the Study

Lovaas (1987) treated young autistic children, who were under the age of four, with intensive behaviour modification. Specific techniques included the use of shaping, positive reinforcement, negative reinforcement, and various types of punishment. Chapter 2 will outline more fully, specific behaviour modification techniques, such as the ones Lovaas used in his program. The study consisted of three groups of children. The experimental group (n=19) received behavioural treatment for 40 hours per week, for a two year period. Control group #1 (n=19) received 10 or less hours of treatment per week, also for a two year period. Control group #2 (n=21) received no treatment.

Results

Lovaas claimed that nine of the children in the experimental group recovered, eight were aphasic (difficulty with expressive and/or receptive language) and two remained autistic or mentally retarded. The figures for the control groups are as follows:

Control #1 0 recovered; 8 aphasic; and 11 autistic or retarded.
Control #2 1 recovered; 10 aphasic; and 10 autistic or retarded.

Lovaas (1987) considered a child recovered if he or she could pass grade one in a regular school setting, at the correct chronological age, and could test within the average or above-average range on an IQ test.

Training Program

Lovaas' (1981) training program has four basic underlying principles, all of which reflect Lovaas' philosophy:

- Deviance from the norm does not necessitate the implementation of unique treatment methods; "laws of learning apply to individuals with deviant organic structure as they do to individuals with less deviant structure" (p. 2).
- The average learning environment works best for average learners; "Persons at either extreme do not learn well from the average environment because that environment has not been constructed for them" (p. 2).
- "Special education and psychology may help those who deviate from the average by creating and constructing special teaching environments in which the deviant may learn" (p. 2).
- This special environment should resemble the child's natural environment as much as possible; "The smaller the difference between the special therapeutic/educational environment constructed for the child and the average environment to which, it is hoped, he will return, the easier the transition" (p.2).

Lovaas (1987) makes an eloquent statement regarding the cost effectiveness of intense behaviour modification programs. He states "the assignment of one full-time special-education teacher for 2 years would cost an

estimated $40,000 in contrast to the nearly $2 million incurred (in direct costs alone) by each client requiring life-long institutionalization" (p. 9).

Lovaas (1981) discusses the negative aspects of his program, or, rather, the mistakes he made when first beginning this project. Through this learning process, Lovaas incorporated changes into his project which were intended to improve the teaching and remediation of the autistic children. When Lovaas and his team first began this study, they treated the children in a hospital setting. Lovaas and his team of graduate students found that the children were not able to generalise the new behaviours they learned in the institution to their natural environments. Lovaas discovered that the children were better at generalisation when the treatment was carried out in the child's own home and preschool environments.

Lovaas (1981) did not include the parents of the children in the treatment process in the beginning. Lovaas felt that the children needed the help of professionals and therefore did not enlist the help of the children's' parents or teachers. Lovaas came to realise that their program could not be successful unless the parents and teachers were included in the goal-setting process and the administration of the behaviour modification techniques.

Y. is a four year old boy with autism. At the beginning of the school year, Y. targeted a student in his preschool class to terrorise. Y. would attack this other boy for no apparent reason. One day, Y. was sitting at the table with several of his classmates, including this other boy. Suddenly, Y. jumped up from his chair, lunged across the table, and began violently choking the other student.

Lovaas (1981) comments that he expected the children to progress quickly as a result of the intensive training. He soon realised that these children, because of their special needs, do not generally make great strides, rather, "progress followed a slow, step-by-step upward progression, with only a few and minor spurts ahead" (p. x).

Evaluation of Lovaas' Work

The work of Lovaas (1981; 1987) and the publication of his report outlining his phenomenal successes has raised the criticism of some of his colleagues. Schopler, Short and Mesibov (1989) have been fairly critical in their review of Lovaas' work. For example, Schopler et al. point out that Lovaas included no hard data in his report to back up his claim that a large portion of the children in the experimental group recovered from autism. Schopler et al. write that it is not enough to say that a child has recovered from autism simply because he or she is now placed in a regular classroom. Schopler et al. claim that more tolerant attitudes towards integration and the fact that the children in Lovaas' study had full-time advocates could have more to do with the children's being placed in regular classrooms, than a dramatic increase in IQ level. Lovaas, Smith, and McEachin (1989), in a rebuttal to these criticisms, claim that in fact, each child in

Z. is a fifteen year old girl with autism. Z. is very self-abusive. Z. pokes her index finger into her eye sockets, so that the whole finger is inserted into the socket. Z. has damaged her retina doing this. Z. also bangs her head on hard surfaces, such as brick walls and door frames. Z.'s head is full of raised bumps from this self-abuse.

their experimental group was dropped from the experiment before entering grade one. They assert that "These children then entered normal first grade classes on their own merits. They remained there without any special intervention and were passed from grade to grade using the same criteria applied to all other children in such classes" (p. 165).

Schopler et al. (1989) also question the characteristics of the children chosen for Lovaas' (1987) project. Lovaas claimed that all the children in his study were classically autistic - some were non-verbal, many were low-functioning, etc. The gains that Lovaas reports that these low-functioning children made are surely impressive. Schopler et al (1989) show, however, through a detailed discussion of the IQ measurements that Lovaas used, that in reality, the children in the experimental group were likely fairly high-functioning children with autism. Schopler et al. claim that "The subjects used in this study were not an average or below average group of autistic children. Instead, the treatment group was a nonrepresentative, relatively high functioning group of autistic children with the best prognosis regardless of treatment" (p. 163).

Lovaas et al. (1989) refute this statement. They claim, through a detailed discussion of IQ tests and a comparison with previous research, that the children in their experimental group "did not have a better prognosis than most children diagnosed as autistic" (p. 166).

Schopler et al. (1989) argue that there are other flaws contained in the work of Lovaas besides the two mentioned above. They conclude their review with the statement that "the most conservative conclusion to be drawn is that it is not possible to determine the effects of this intervention" (p. 164).

Self-Stimulatory Behaviours

Definition

Lovaas, Newson, and Hickman (1987) discuss the commonly seen characteristic of self-stimulatory behaviour in autistic children. They state that the young autistic child experiments with various self-stimulatory behaviours.

AA. is a twelve year old girl with autism. AA. becomes abusive with others. She will punch her teacher and teacher associate with her closed fist when angry. AA. has punched them on the back and on the back of their legs.

Through trial and error, the child eventually perseverates on only those behaviours that provides him or her with the most perceptual satisfaction and reinforcement. Lovaas, Newson, and Hickman reviewed the literature and found support for the notion that self stimulatory behaviour is self-reinforcing, and thus a learned behaviour. The authors feel that the strength of the perceptual rewards may interfere with external motivators:

> the reinforcing stimuli generated by self-stimulatory behaviour may be so strong relative to the extrinsic reinforcers controlled by the therapist or teacher that such extrinsic reinforcers may be relatively ineffectual... perceptual reinforcers control the individual's attention to such a degree that he or she attends minimally or not at all to external stimuli. (p.56)

General Strategies

Lovaas, Newson, and Hickman (1987) suggest that teachers, parents and therapists may gain some control over self-stimulatory behaviours through the use of an behaviour modification model. They offer three suggestions:

- employ sensory extinction techniques; in other words, remove the perceptual rewards in order to produce a decrease in the self-stimulatory behaviour,
- strengthen alternative behaviours, and,
- use the self-stimulatory behaviour as a reward for other, more socially appropriate behaviours. The child can be allowed to engage in self-stimulatory behaviour upon completion of a designated task. This will only work with self-stimulatory behaviour that is not harmful to the child or others in the environment. For example, if a child liked to stroke a certain piece of cloth, then he or she could be given the special cloth after certain tasks or behaviours were carried out.

Stimulus Overselectivity

Definition

Lovaas, Koegal, and Schreibman (1979) talk about stimulus overselectivity, which they say, happens quite frequently in children with autism. They define stimulus overselectivity as the overselection of:

> a limited set of stimuli from those available in their environment....the children respond to only part of a relevant cue, or even to a minor, often irrelevant feature of the environment, without learning about the other relevant portions of that environment. (p. 1237)

Treatment Suggestions

Lovaas, Koegal, and Schreibman (1979) suggest that is this overselectivity were corrected, perhaps autistic children would learn through more traditional approaches. They further suggest that discrimination training is the preferred method of eliminating stimulus overselectivity. Lovaas, Koegal, and Schreibman are vague, however, as to exactly how to go about this discrimination training. They simply encourage teachers and therapists to use "sufficient effort and imagination" (p. 1246) in eliminating the negative effects of stimulus overselectivity.

BB. is a thirteen year old boy with autism, who is also hearing impaired. BB. touches the chalkboard with the tips of his fingers every time he leaves the classroom, and he touches the stereo in the same manner, every time he enters the classroom.

Conclusion

It seems that in the field of autism there are often more questions than answers. No single cure has been found. In fact, no two children with autism display exactly the same characteristics. Several facts are clear, however, regarding the research literature concerning autism. One is the fact that many individuals with autism are also intellectually disabled. Educators must not assume a high level of functioning in individuals with autism because of possible islands of competence. An autistic child may seem to be functioning at a normal or above-normal level of intellectual ability

because of good verbal skills or exceptional mathematical ability. However, this same child likely is functioning at a below-normal level in most other areas.

Another critical fact that seems clear from the research into autism, is that while there is no cure for autism, there is hope for remediation. Many children and adults with autism can learn to carry out tasks and to function as independently as possible. Educators must provide the best educational program possible, one which will enable their students with autism to grow and to learn and to become optimally functioning adults in our society.

In spite of the above findings, many children with Asperger's syndrome can lead successful lives as adults. We have many examples of this today. Temple Grandin (1992, 1995) and Donna Williams (1992) are both successful high-functioning adults with autism. In order to help people with autism to function optimally, intervention must begin early; and it must be appropriate for each specific child's needs. Our educational goal should be to increase the likelihood of successful adult adjustment for people with Asperger's syndrome. Teachers and parents of children with Asperger's syndrome are encouraged to seek out the best educational practices available to date and to

CC. is a four year old boy with autism. CC. engages in very ritualised behaviours when eating. He lines up the cereal boxes, bowls, cutlery, etc., in the same order every day. His mother has to remove her watch so he can place it in the line-up as well. CC. plays with his toys in the same manner - lines them up on table edge or wall border. CC. likes to push a doll stroller repeatedly around the schoolyard at his preschool or in his own backyard. He will do this for hours at a time and will have a tantrum when interrupted.

implement individual programs which will enhance the growth and development of their child with Asperger's syndrome.

It is also clear from the literature that many individuals with autism exhibit inappropriate and at times, unmanageable behaviour. The research literature indicates that the predominant treatment for these individuals is the use of behaviour management techniques. It is important for the practitioner to have a basic knowledge of behaviour modification techniques. It is more important, however, for the practitioner to know when and how to use these techniques. Every individual with autism will present with different characteristics and different behavioural issues. The practitioner will need to know how to decide which behaviours should be worked on first, which techniques would be most effective in altering behaviour, and when to change or add to the treatment program.

DD. is an eight year old girl with autism. DD. is in a classroom with seventeen other special needs students. For two days, near the beginning of the school year, the teacher could not figure out what was going on during the lunch hour. Not one child in the classroom seemed to have a dessert in their lunchkits. On the second day, the teacher figured it out - DD. had taken every dessert out of each of the lunchkits in the morning, and stashed them in her own lunchkit and brought them out at noonhour. DD. lined them up on her desk and began to eat them, before she was stopped.

Chapter 2

Teaching Strategies and Techniques

Introduction

Perhaps the most debilitating handicap for people with autism in general, and AS in particular, is their lack of social awareness and lack of social skills. People with AS need to be taught, explicitly, the required social rules and etiquette for getting along with peers in a variety of contexts. They do not learn the appropriate behaviours by watching others and mimicking correct behaviours.

One day, a seven year old with autism, was asked by his teacher assistant to talk in a quiet voice, as his loud voice was disturbing the class. The boy replied, I hate quiet - I need more voice!"

Teachers of children with AS cannot assume that their students already possess a basic foundation of social skills in hopes of teaching higher order social skills. Teachers and others working with these children must assess at what level the skills are breaking down, and begin instruction, very often, at the primary levels.

This chapter will begin by discussing general teaching strategies and considerations that practitioners should find useful when working with children challenged by autism and Asperger's syndrome. Next, communication and language development will be addressed. Finally, specific techniques and strategies for the development of social skills will be outlined.

General Guidelines

Wing (1981) has developed some general guidelines for the management of people with AS. She suggests that teachers, parents, and others involved in the autistic person's life should:

- keep to a regular, predictable routine,
- keep to the concrete rather than the abstract,
- try the use of behaviour modification techniques,
- develop an appropriate educational program in order to develop existing skills and abilities that may lead to eventual employment, and,
- treat psychotic illnesses appropriately, if they appear.

Grandin (1992) has observed that "some of the most successful high-functioning autistics have directed childhood fixations into careers....Fixations can be tremendous motivators. Teachers need to use fixations to motivate instead of trying to stamp them out" (p. 115). She also has developed a list of teaching suggestions for teachers and parents that apply to high-functioning people with autism. Some of Grandin's (1995) suggestions include:

- Use visual methods of teaching and avoid long strings of verbal information. People with autism often communicate better with the written word. Introduce typewriters and word processors at an early age....
- Direct and broaden fixations into useful activities....
- Develop talent areas such as drawing, music, and computer programming....
- Sensory integration therapy from an occupational therapist should be made available to children with autism....
- Mainstreaming and meaningful contact with children who have normal social behavior is essential if a child with autism is to learn social skills....
- Early intervention improves the prognosis....

- A structured, predictable classroom environment helps children with autism learn....
- Exercise can help reduce disruptive behavior....
- Sensible use of behavior management techniques is part of a good treatment program....
- The correct medications used properly can improve both behavior and the quality of life. (p. 49 - 50)

Classroom and Teaching Guidelines

There are many other ways a classroom teacher can help the person with AS to function more appropriately and effectively within the classroom. The following are concrete and practical suggestions for the classroom teacher that may help the student with AS to fit into the classroom community. Many of the ideas have been adapted from the work of Karen Williams (1995), of the University of Michigan Medical Center Child and Adolescent Psychiatric Hospital.

Daily Skills

The child with AS is sensitive to changes in his or her daily environment. The teacher should try to keep transitions to a minimum and to avoid surprises. When possible, the teacher should prepare the AS child in advance of any changes to the regular schedule. When the AS student must change programs, classrooms, schools, etc., he or she should be allowed to visit the new site, meet the new personnel and become familiar with the expected routines.

The AS child is usually gullible and naive and often the target of other students teasing. The

A seven year old boy with autism often talks in "book language". After listening to a particular story, he may decide to speak to others in his environment using the same story pattern he has just heard. For example, after hearing the story, The Three Little Pigs, the boy would respond to a request by his teacher or teacher assistant by saying, "No, no. Not by the hair of my chinny chin chin."

classroom teacher may have to protect the AS student from the bullying and teasing tactics of others. Williams (1995) suggests teaching the classmates of the AS student about the disability and enlisting their help in assisting the AS student with learning social rules, etc. She also suggests pairing the AS student with a peer who can help the AS student during the day, help focus him or her on tasks, and involve him/her in social activities.

The classroom teacher will have to watch what the AS student is doing at all times. AS children like to be left alone to pursue their own interests and to enjoy their rich inner, fantasy life. However, the classroom teacher should encourage the AS student to remain involved with classmates as much as possible during the school day.

Obsessions

The AS student will often want to dominate classroom discussions by perseverating on his or her particular interest or obsession. One way of dealing with this is to limit the amount of time the AS student is allowed to talk about his or her topic of interest. The classroom teacher can specify or timetable a period of time each day that the AS student will be allowed to talk or ask questions about his or her interest. The AS student should not then be allowed to perseverate on his or her topic during other parts of the school day.

Some children with AS are very stubborn about completing homework, to the point of refusing to do any work not related to their particular obsessions. Williams (1995) stresses that:

> Firm expectations must be set for completion of classwork. It must be made very clear to the child with AS that he is not in control and that he must follow specific rules....however, meet the children halfway by giving them opportunities to pursue their own interests; For particularly recalcitrant children, it may be necessary to initially individualize all

assignments around their interest area...Gradually introduce other topics into assignments. (p. 11)

Attention

Children with AS often experience difficulty with concentration and focused attention. A strategy to help with this area is to time the student's work sessions, with the expectation that incomplete work or carelessly completed work will be made up during recess or some other strategic time period. Timing AS students helps to organise themselves and also breaks the work into smaller units which are more manageable for the AS student.

Co-ordination Skills

The AS student is often poorly co-ordinated in both fine and gross motor skills. Regardless, exercise is an important component of the AS student's educational program. Grandin (1995) has already mentioned the impact that exercise can have on reducing excessive behaviour problems. The AS student will benefit from a fitness-type of physical educational program as opposed to participating in a competitive sports program. There can be problems if an AS student is required to participate on a team; "his or her poor motor coordination may only invite frustration and the teasing of team members. The child with AS lacks the social understanding of coordinating one's own actions with those of others on a team" (Williams, 1995, p. 13).

One strategy that will help the AS student with handwriting skills is to teach him or her the verbal prompts to form the letters (e.g. a = small circle with a stick). The AS student will likely memorise these verbal prompts quickly, and can then use them to remind him or her of the correct letter formations during independent work sessions.

Emotions

The person with AS typically is anxious and stressed by many factors in his or her environment. The AS student is prone to emotional outbursts and tantrums because of this. One way to prevent outbursts is to make the AS student's environment as predictable as possible. Another tactic is to teach the AS student how to cope with stressful situations. The AS student can be shown how to take deep breaths in order to relax the body, to count to ten before responding, etc. The stress-reducing steps can be written on a card or small piece of paper and given to the student to carry as a visual reminder.

One day a seventeen year old girl with autism was at the computer with her teacher. Suddenly, the girl raised her arm in front of her, and brought it back towards the teacher. The girl continued to swing her arm into the teacher. The teacher was knocked backwards off her chair, and somersaulted, still backwards, across the classroom floor.

Finally, it is extremely important that the AS student is paired with a staff member that is available to check on the student daily. This is especially critical for the mainstreamed high-school student. The staff member needs to check how the AS student is coping with various elements of the high school environment, how the AS student seems to be coping emotionally and if further assistance or programming changes need to take place. Williams (1995) stresses that the AS student "must receive academic assistance as soon as difficulties in a particular area are noted. These children are quickly overwhelmed and react much more severely to failure than do other children" (p. 15).

Helping Children Develop Their Communication Skills

One of the most important areas that need remediation in children with AS is the area of communication. Although children with AS typically possess language skills, they often do not use language to communicate effectively or to

engage in the social aspects of communication. They have a basic disorder of pragmatics (Twatchman, 1995). Twatchman (1995) offers many remedial suggestions for use with high-functioning children with autism. Some of her ideas will be briefly discussed next.

- Use the child's strengths and interests to encourage language growth. For example, if a child is interested in trains, then use trains to facilitate language growth.
- The classroom should contain visual displays and reminders regarding expected behaviours and classroom rules, calendars outlining daily jobs and choice boards. The child with AS will be able to monitor his or her own behaviour through the use of these visual and concrete clues. Children with AS will:

  > function with greater success and with less anxiety in an environment that is orderly, understandable, and predictable both in terms of its macrostructure (i.e., general arrangement of activities, events, and materials) and in terms of its microstructure (i.e., inclusion of specific concrete supports). (Twatchman, 1995, p. 144)

- Children with AS will need subtle social cues pointed out to them, as they will not perceive these social cues on their own. There are several types of social behaviours that may appear confusing for the high-functioning child with autism and they can be "indexed"

A fifteen girl with autism was with her class on a field trip to a large shopping mall. The girl was talking constantly, to everyone in her group, and even to people not in her group. While she was walking along the mall corridor, she was talking to the principal and not looking where she was going. She walked into the water of a fountain. Without stopping to catch her breath, and without breaking her stride, the girl immediately said to the principal, "There, Mr. Principal, you missed it. If you had a video camera, we could have been on America's Funniest Video's!"

(Twatchman, 1995, p.148) or pointed out for the child. Twatchman gives examples of the different types of social cues that need to be indexed for the child with autism:

1. point out *social* information: "Look, Timmy's waving to you. Can you wave back?"
2. point out *emotional* information: "Mary got hurt. Look, she's crying, poor Mary. Can you tell Mary 'I'm sorry'?"
3. point out *anticipatory* information: "Look, Joey's going to throw the ball. Put your hands up."
4. structure the *commenting* function: "Look at the bird eating birdseed. The bird must be hungry."
5. code *feelings and reactions*: "Ryan's very angry at Joey for taking the ball. Tell Joey, 'Give me that ball.'"
6. encourage *perspective-taking*: "Ryan likes his pickle. Look, Joey hates his pickle. Look at Joey. Joey's making a face that says 'I hate this pickle.'" (Twatchman, 1995, p.148)

- Teach the child with AS functional language, such as the word "No"; "Can I have a break now?"; and, "I need help." By doing this, the teacher empowers the child and also prevents temper tantrums that may stem from feelings of frustration and powerlessness.

Hyperlexia and Language Development

Some authors have suggested that hyperlexia is not the same condition as autism (e.g. Kupperman & Bligh). They therefore propose a different set of teaching methods specifically for the hyperlexic student. Kupperman and Bligh provide some general guidelines to follow when hyperlexia. They include such things as:

- use written language to pattern language, to request items and to label objects, to outline expectations and rules for behaviour

- teach specific phrases and provide opportunities to practice new phrases in

various contexts

- teach how to answer *wh* questions
- teach how to ask *wh* questions
- teach associations (e.g. same & different); cause and effect; and sequencing
- show how to make choices
- teach how to describe
- teach how to argue appropriately
- practice conversation skills

Observation of Social Skills

Before a program can be developed that will help a child with autism improve his or her social skills, the practitioner must first carefully observe the child (Wolfberg, 1995). These observations are important for several reasons. In order to know where to begin remediation, the program developer must know exactly what skills the child already possesses. For example, a child may have the desire to initiate interactions with peers, as demonstrated by pushing or hitting the other children in order to get their attention. With this information, the

A beautiful, healthy, three year old girl with autism spends a lot of time looking at herself in the mirror. She makes faces at herself, and "sings" to her image in the mirror. Many of these "songs" resemble vowel sounds, although the girl is non-verbal. The speech and language pathologist gradually shaped these sing-song sounding vowels into a few words, such as up and down. However, the young girl would only produce the words while with the speech and language pathologist in the clinical setting - she could not generalise to other environments.

practitioner can then develop a social skills program that builds on this primitive initiation skill.

Observations of children are important for other reasons as well. Wolfberg (1995) explained that observing children at play "fosters a greater understanding and appreciation of each child's unique play characteristics" (p. 204). Also, through observation, the practitioner will see how the child solves problems and confrontations with peers. This information will be useful when developing a social skills program. Examples of observation forms can be found in Appendix D.

Activity Routines

In order to help high-functioning children with autism, the adults in the child's environment must delineate and co-ordinate every step in each social interaction. The expectations for interactions must be clearly identified for the child (Quill, 1995). The adults trying to help the child must not assume that the child has prior knowledge and can generalise from one social experience to another similar experience.

One strategy for helping children with autism is called an activity routine (Quill, 1995). An activity routine is a "predictable sequence of interactive turns...a conversational script of what to do and what to say within the context of a meaningful situation" (p. 175). The child is

provided with repeated opportunities to practice social interactions. The child learns what social rules apply in a specific situation and why these rules are important. Flexibility and generalisation skills are introduced once the child can participate in a predictable social interaction.

There are several steps to follow when developing an activity routine that will ensure success for the child. The first step is to choose a naturally motivating activity in which the child will participate. The situation should include opportunities for the child to interact with other children and not merely engage in parallel play. Turn-taking games are ideal situations for developing an activity routine.

The next step involves defining specific objectives for the child. The teacher or other adult setting up the activity routine must have a good idea of what typical children do in the same situation. It is also important to know what existing skills the autistic child has, and to build upon these skills. The actions and language interactions expected from the child must be clearly spelled out. For example, in a turn-taking situation, it may be outlined as an objective that the child will say "Your turn" and "My turn" appropriately.

A thirteen year old boy with autism, who said very little to anyone, went on a field trip to West Edmonton Mall. He went on the very fast ride, called Drop of Doom. The boy very seriously commented after the ride, "Oh my God!"

The program developers must also clearly outline the sequence of steps involved in the activity routine. These same steps should be followed every time the child practices the routine. Having a script or other written format is also helpful for many

children with autism. The children then learn exactly what to say and when to say it within the structured activity routine.

Some children with autism may simply memorise the scripted activity routine. Once the child has had repeated opportunities to practice a new skill, then flexibility can be introduced. The activity routines and scripts can be revised to include new situations and new interactions. Parts of learned scripts can be inserted into new scripts so that the child has "opportunities to successfully use learned communication under different conditions and with various interactive partners" (Quill, 1995, p. 178). See Appendix E for an example of an activity routine (individual schedule).

Peer Tutoring

Another strategy that helps to develop social skills in children with autism involves the use of peers. Quill (1995) says that peers can be trained to interact with children with autism. The first step in the training process is to explain various communication methods and also to explain any special methods that their autistic friend may use to communicate. Next, peers are taught, through role-playing techniques, how to initiate and maintain social interactions with their friend who has autism. The adults may also model appropriate behaviours for the peers, showing the peer what to do and what to say in the situation. Gradually the adult

A four year old boy with autism had a lot of difficulty sitting still in the school library with his classmates. He was allowed to move around and to find his own space for storytime. Now the boy is comfortable sitting on the outer boundary of the group of children. He will sit still and look at the pictures when shown the book.

support and guidance is withdrawn, with the goal of promoting naturally motivating interactions that occur spontaneously.

Many programs designed to teach children with autism appropriate social skills, use peer tutors, or same-age peers, in the teaching process. This is done primarily because the social skills will be learned more quickly and generalise better when they are taught in a natural setting with children they would typically interact with in their neighbourhoods, schools, etc., as opposed to teaching separate skills in an artificial setting such as the classroom.

Lord (1995) outlines six basic principles that are commonly found in peer intervention programs. The six principles of peer intervention include the following:

- peer interventions must be conducted in a positive environment in which interactions with same age-mates are pleasurable,
- peers are supported in their interactions with the autistic children and adults, but are not directed how to behave,
- the temporal and physical structure of the group is deliberately varied,
- sessions must occur with sufficient frequency so that group rapport develops, autistic students must comprise less than half of the group, and,
- set specific goals for each autistic student in the intervention and evaluate progress after a specified time.

There are many different social skills programs available, but most will follow these principles to ensure the success of the intervention program. The basic elements of an intervention program will attempt to include interesting

activities and materials that will motivate the non-autistic child to interact with the autistic child. The peer tutors should be given some general guidelines to follow during the interaction periods. However, in most instances, they will be left alone during the actual interaction period, in order to encourage "spontaneous peer interaction" (Lord, 1995, p. 223). The physical space will be delineated, in order to keep group members in close proximity and to encourage interactions between the children. In some intervention programs, the group will focus on a common object or objective, for example, playing with playdough, playing a game, or making a snack. Finally, an intervention program should outline some specific goals for each autistic child in the group in order to measure progress in specific skills.

Integrated Play Groups

Another strategy used in treatment programs for autistic children is called integrated play groups. This strategy is based on Vygotsky's work and his statement "that play is an inherently social and collective process" (Wolfberg, 1995, p. 194). Vygotsky asserted that "the transmission of culture through social integration is critical to the formation of mind" (p. 194). Imagination and play facilitate the sharing of common meanings "and appropriate social knowledge" (p. 194). Integrated play groups are used to bring expert and novice players together in a structured setting. The teacher or other adult in charge guides the

interactions between the players. The goal of integrated play groups is to help children with socially inappropriate behaviours learn appropriate skills from normally developing children.

First Component

There are several components to the integrated play group model (Wolfberg, 1995). These components provide a structure for the teacher or clinician to follow when developing a program based on the integrated play group model. The first step in the model is to monitor the play interactions between the student and his/her peers. By doing this, the teacher or clinician can look for a match between the student (the novice player), and the peers (possible expert players).

Second Component

The second component in the integrated play group model is to "scaffold interaction" (Wolfberg, 1995, p. 207) between the novice and expert players. There are three levels of support that the teacher/clinician gives to the novice player in an integrated play group situation. Level 1 support consists of providing a lot of verbal and physical cues to the child. The teacher/clinician may have to guide the student in every interaction and prompt every initiation. Level 2 support consists of giving the child verbal cues only. The teacher/clinician also physically moves away from the child when possible. A child is operating at Level 3 when he or she can play successfully with other children without the teacher's support. The teacher/clinician should remain close to the play area, however, in case the child indicates that he/she requires assistance with an interaction.

Third Component

Another component of the integrated play group model consists of providing "social-communication guidance" (Wolfberg, 1995, p. 208) for both the novice and expert players in the play group. Strategies are taught to the expert players that will enhance their ability to engage a novice player in play. For example, the expert player may be taught to call a novice player's name to get his/her attention, **and** to touch the person on the arm or obtain eye contact while calling the person's name. Another strategy that both expert and novice players could be taught would be to say "Can I have a turn?" in appropriate situations.

Fourth Component

The final component of the integrated play group model is to provide actual play guidance for the players. Wolfberg (1995) gives several examples of strategies that can be used to guide play interactions. They include:

> Orienting Strategies....encourage a novice player to simply observe the other children in play while maintaining distance from them....Mirroring Actions....children with autism are very responsive to the mirrored actions of their own behavior by others. This is a fun way for a peer to attract the attention of a child who is preoccupied in a repetitive activity....Parallel Play....fosters children's awareness of one another's activities as they play with similar materials in the same play space....Joint Focus....encourage them to actively share materials and to informally take turns in play....Joint Action....guide the children to formally take turns while actively manipulating the same objects or participating in the same game. Role

> Enactment....involves portraying real life activities through conventional actions....Children who have not yet reached the stage of advanced pretense can enact roles within the context of sophisticated play themes organized by more experienced peers....Role-playing....Children take on pretend roles and use objects in imaginary ways while enacting complex themes and scripts. (p. 210 - 211)

Social Reading Strategies

Social reading strategies are similar to activity routines, but generally include more information. They are often used in remediation programs for the high-functioning student with autism. Social reading is the process of using "situations from a child's actual experience to visually present social information and teach social skills" (Gray, 1995, p.220). Social reading includes three components: social stories, social review, and social assistance. These three components will be discussed in the following sections.

Social Stories

Social stories are narratives that should make clear certain expectations and behaviours that many AS children lack. They can be written by teachers, parents, or other professionals involved with the child. They can be used at school or in the home. They can be used with children who can read and those who can not read. Gray (1995), a leader in this area, has stated that:

> Social stories are useful for identifying relevant social cues, introducing new routines and rules, and/or positively defining desired social skills. In addition, social stories in the school setting can prepare a child for unexpected situations such as substitute teachers, fire drills, or school closings. At home, parents may decide to write a social story to prepare their child for an upcoming event, such as a visit to a relative or a family vacation, or to introduce a new daily routine. (p. 222)

Writing a social story should not be undertaken lightly. There are several steps to consider and lot of careful thought must go into a social story. The following is a brief discussion of each step in the writing of a social story:

Target the skill - This is often quite easy to do. It will be obvious to the adults involved that the child is having difficulty with some aspect of social interaction with peers.

Information Gathering - According to Gray (1995), this is the most critical step in the writing process. Not only does the writer have to observe and write down everything that occurs in the targeted situation, but he/she must take note of things that can *not* be seen. When gathering information to include in a social story, the writer must record as many variables as possible that are part of the targeted situation, such as, noting that all students are expected to put their work away before lining up for recess.

A young boy with autism would look through another person's eyeglasses while still on that person's face, when his glasses were not on his face.

The next step in the information gathering process is to find out about things that the writer is not directly observing. That is, he/she must find out what happens if something unexpected comes up; if a substitute teacher is present, if the targeted situation happens every day at the same time, etc. Gray (1995) suggests that the story writer "Look for aspects of a situation that may change the situation or alter the basic routine" (p.223).

The final step in the information gathering process is often the most difficult. The writer must try to see the situation from the child's point of view.

Gray suggests that the writer discuss the situation with the child if he or she is able to communicate about it successfully. Also, the parents of the child involved would be very helpful with this part of the information gathering process. The purpose of this step is to help the writer better understand what part of the social interaction or behaviour is causing the problem for the child.

Share Observations - In this part of the process the writer records all the information gathered into a social story. The social story may be presented in written format only, in written format with an audiotape, or recorded on videotape. The format chosen will depend upon the child's reading ability. The social story may include illustrations or photographs, however, this may be too distractible for some children with autism.

Gray (1995) suggests a certain format to follow when writing social stories. Descriptive sentences usually begin a social story. The purpose of descriptive sentences are to "explain what occurs and why; they paint the backdrop" (p. 225) for the child. Directive sentences usually follow descriptive sentences and generally tell the child to do something. Perspective sentences are interspersed throughout the social story. Perspective sentences tell the child why a certain behaviour is expected or how someone feels. For example, when writing a social story about turn-taking during a game, the writer should clearly tell the child that taking turns when playing a game is expected because that is how everyone gets to play and join in and that the teacher feels happy when everyone gets a turn.

Read and Practice the New Skill - Once the social story is written and a format decided on, it is ready to share with the child. It should be read with the

child several times a day at the beginning. It can be shared with class members and other adults in the school. Everyone that may be involved in the social story or in learning the new skill should have the opportunity to read it with the child.

A four year old boy with autism really wanted to leave his classroom, however, the teacher did not allow the boy to leave. The boy took the teacher to the play centre in the classroom and engaged him in play. After a few minutes of play, the boy felt that the teacher was distracted and quietly snuck away towards the door, in another attempt to escape the classroom.

This is important so that everyone involved is aware of what the child is trying to learn and what he/she expects from the others.

In some cases, a change in the child's behaviour will be noticed soon after the social story has been introduced. Other times, the progress will be slower. Often the social story will have to be revised and rewritten because the child may misinterpret some aspect of it or something crucial was forgotten in the writing process.

Once the child shows mastery of the new skill, the reading of the social story can be gradually faded. Sometimes it may be useful to rewrite the story so that it includes basically the same skill, but takes place in a different setting. Some children may wish to keep their social stories in a special place in the classroom to review periodically, on their own . Appendix F contains an example of a social story.

Social Review

The social review is another part of the social reading strategy. The social review is more suited for older and high-functioning children with autism, rather

than for younger children and lower-functioning children. The child must be able to communicate and reflect, somehow, about things he/she sees and hears. The social review follows the same basic steps as the writing of a social story:

Target the Skill - Again, this will be fairly easy. For a social review, however, the teacher does not record the targeted skill with paper and pen, but with a video recorder. The teacher video-tapes the AS student in a social situation in which the student is behaving inappropriately. This is the target situation.

Information Gathering - In this step of the social review, the teacher and student should be in a room by themselves, with the videotaped target situations. The teacher begins by explaining to the student that they will be watching a video of his/her class and that they each will be writing down things that they see on the tape. The teacher and student watch the video several times with the volume off, each recording things on paper, such as the objects they see, the people in the room, and what the people are doing. The teacher must be careful not to express any statements regarding the emotions of the people in the video; that is, not to interpret actions and behaviours as feelings. (The teacher would not say "The teacher is mad.", but may say "The teacher is frowning and shaking her finger.")

The video is then viewed with the volume on. The teacher and student again record their observations on paper.

Share Observations - In this step, the teacher reviews his/her written observations along with the student's written comments. The teacher points out any similarities between their two observations. The teacher also uses this opportunity to point out the differences or the things that the student may have missed in viewing the situation. The teacher writes down the shared observations along with the new information that the student missed.

Practice New Skill - The teacher's job in this step of the social reading process is to guide the student to a new understanding of what is expected of him/her in the targeted situation. In some cases, the student will come to this realisation on his/her own. In other cases, the teacher will have to tell the student exactly what he/she should be doing. For example, a student may have a problem with raising his or her hand during class discussions, preferring to shout out answers and contributions without giving other students a chance to respond. After viewing this target situation on video-tape, the student may realise that the other students in the class raise their hands and wait for the classroom teacher to call their name before responding. Alternatively, perhaps the student would not be able to 'read' this social situation, even after repeated

When a young women with autism was a young girl, she loved tape - any kind of tape. She would keep a stash of various kinds of tape in her socks. Occasionally she would store elastics and tissue in her socks as well. Now, as a young woman, she keeps tape and tissue in her pockets.

viewings of the video-tape. In that case, the teacher would have to tell the student directly and quite bluntly, exactly what he or she should be doing.

Once the student understands what is expected of him/her, the teacher can help him/her to practice the new skill. At this point, a social story may be written to help point out exactly what the student should be doing in the targeted situation and what to do if something unexpected happens.

Social Assistance Activities

Social assistance activities are techniques designed to help the child with autism become more independent in social situations. They include such things as:

- **Modified Classroom Schedule** - Most classrooms have a daily schedule displayed indicating what subject happens at what time. Gray (1995) suggests that classroom teachers add the words "Usually we have..." (p. 237) to the top of the schedule. By doing this, the teacher "introduces the possibility of variations in the routine as part of the schedule" (p. 237).
- **Modified List of Classroom Rules** - Most classrooms display a list of rules, as well. Often these rules are written by the class and teacher together. Gray (1995) suggests adding 'why' statements to each posted rule which explain why the rule is important.
- **A Direction Board** - Many classroom teachers list directions to follow for certain activities and routines. Gray (1995) suggests that teachers laminate direction boards. They can then write in with erasable pen any additional activities particular to that day. The student with autism then has a visual

reminder that an expected event will be taking place and when that event is taking place.

- **Computer Conversations** - For some children with autism it is beneficial to hear a conversation as well as see it. Gray (1995) suggests that for a really important conversation, (for example, one about the child's behaviour), that the teacher use the computer with the child. The teacher and child both sit facing the computer. The teacher types his/her part of the conversation while talking. He/she also types the child's part of the conversation and responses. The child is given a printed copy of the conversation at the end of the discussion.

- **Social Reading Folders** - This technique is for the child to use when doing desk work. The AS student is given a regular file folder, in which the middle portion of the top sheet has been removed. What remains is approximately a five-centimetre border made from the top sheet of the file folder. The child inserts the worksheet into the folder so that the border surrounds it. Gray (1995) suggests that "On the top border is a written reminder to the child: 'It's okay if I make mistakes. That's how children learn.' A statement on the bottom border may direct the child where to place the completed assignment" (p. 238).

- **Social Reading Bookmarks** - This is a visual cue for the AS student, especially useful to use with specific behaviours. The reminder is written as a brief statement and is recorded on a bookmark which the child places in a reader or textbook. An example of a reminder might be "I will raise my hand before I talk" (Gray, 1995, p. 238).
- **Keep Me Posted Notes** - This is a simple strategy that a teacher can use to remind students about appointments coming up in the day. For example, the student may have an appointment with the speech and language pathologist later in the morning. The teacher would write a reminder note on a sticky note and place it on the student's desk. This reminder may help the student with the transition from the classroom to the therapy room.
- **Reminder Signs** - This is a good strategy for a teacher to use with a whole classroom; it does not have to be directed just at the child with autism. For example, the teacher may notice that the autistic child, along with several other students, are having trouble remembering to raise hands to speak. The teacher would create a reminder sign to display during targeted trouble times, and tell students that when the sign is displayed, they must try extra hard to remember to raise their hands before speaking out loud.
- **Social Calendars** - The social calendar is a very effective tool to use with the AS student. The teacher writes a behavioural statement at the top of a monthly calendar. The statement might be "I will finish my work" (Gray, 1995, p. 239). At the end of each day, the teacher and/or student writes a short evaluative comment in the square for that day. The comment might be as

simple as writing 'Yes!', or 'I will try again tomorrow.' The behavioural statement would be changed each month.

Reverse Mainstreaming

Another effective strategy that has been used with AS students is reverse mainstreaming. Reverse mainstreaming is a strategy developed by Marian Wooten and Gary B. Mesibov (1986). They have been using this strategy in their classroom in North Carolina for the last seven years. This program is now being used in many special-needs classrooms in other parts of that state.

Rationale

This program is based on the idea that mainstreaming as a concept, is a good one, however, there are problems with implementation. This is especially true of children with autism. Mainstreaming of autistic children generally takes the form of sending them to join regular classes for part of the school day. Often this fails with these children because:

> changes in their routine and environment would make these disruptions in their schedule difficult to tolerate. In addition, the activities would be structured by the teachers in the nonhandicapped classrooms and might not be appropriate for the skills and abilities of the autistic students. (Wooten & Mesibov, 1986, p. 307).

A young girl with autism is self-abusive. She hits herself on the arms and kicks herself on the legs, leaving huge, discoloured bruises. The young girl will then comment on the colour of these bruises - she pulls up her sleeves or pant legs, points to the bruise, and says, "Purple."

In order to avoid these problems with regular mainstreaming, the program developers employ the concept of reverse mainstreaming. Reverse mainstreaming is simply bringing non-handicapped students into the special-

needs classroom, rather than placing the handicapped students in the regular classroom. The program developers stress the importance of keeping as many variables constant as possible for the children with autism. In reverse mainstreaming, the special-needs students practice skills they already possess in a familiar environment. The only new variable is the presence of non-handicapped peers.

Procedure

Wooten and Mesibov (1986) describe one year of this program and the results of using such a strategy. In the particular year described in their article, six boys with autism, between the ages of eight and twelve years were involved with grade five students from the same school. The objectives for each autistic student differed; each boy had his own individual goals to work towards. However, the general objective of the program was to improve the social skills of the children with autism. Examples of specific objectives included playing Bingo with non-handicapped peers, tolerating the presence of other children and learning to complete a puzzle in co-operation with a non-handicapped student.

The regular grade five students came into the special-needs classroom three times a week. Groups of regular students signed up for a 5 - 6 week placement in the program. At the end of the 5 - 6 session, a new group of regular students joined the program. Each regular student was paired with a special-needs student. The activities that all the children took part in were cooking, table games, and outdoor games. The non-handicapped students helped the autistic students with specific goals for each activity. For example, during a cooking

activity, a grade five student's job might be to teach the autistic child how to stir a bowl of batter. The non-handicapped student might work on turn-taking or moving only one game piece in a table game activity. The sports that were included in the outdoor games were basketball, kickball, croquet, soccer, and baseball. In each sport, the skills were broken down into component mini-skills. The grade five students were to help the autistic students learn such things as bouncing a ball, shooting at the basketball net, etc.

A young boy with autism liked to climb. One day, during a gym class, the teacher and teacher associate could not find the boy. He had climbed, unnoticed, to the top of a cupboard unit and was found, curled up, on the top shelf, happily watching all the action.

The authors state that there were two rules that all the children had to follow when working together. Rule one was that everyone was to call each other by name. The teachers felt that this was important, so that the special-needs students would have peers to say hello to in the hallways. Rule two was that the autistic children were to do as much as they could on their own. In other words, the non-handicapped students were not to *do* things for the handicapped students, rather, they were encouraged to *show* them how to do something if they required help.

Results

The program developers conclude their description of this strategy by discussing the benefits of it. They stated that:

> as a result of bringing nonhandicapped children into our classroom and structuring the desired interactions, our students have learned to use their skills in a meaningful way in naturally occurring situations. This had led to the acquisition and generalization of these skills and their use in a variety

> of settings. In addition, it provided a desirable and extremely rewarding experience for our children, the nonhandicapped peers, the families and our school. (Wooten & Mesibov, 1986, p. 318 - 319)

The authors also list some unforeseen benefits of reverse mainstreaming that occurred for their students. Regular education students began coming into their special-needs classroom during the day to talk to the students. Also, the students with autism were asked to eat with "friends" in the cafeteria at lunch times. Wooten and Mesibov (1986) state that as a result of this reverse mainstreaming strategy, "greater integration into the community and school system has become a realistic objective" (p. 318).

Miscellaneous Strategies

There are a variety of programs, ideas and strategies, besides the ones already mentioned, that can used to improve the social skills and play skills of children with autism. The following are a few miscellaneous ideas that may be helpful for some students.

- Use a coloured circle with the words My Turn printed on it when children are playing turn-taking games or developing conversational skills. The circle is passed from child to child to indicate whose turn it is in the activity.
- Act out nursery rhymes and fairy tales with props. This will help to increase the comprehension of stories, improves comprehension of specific words, and encourages turn-taking.
- Read predictable story books and pattern stories with children. This will help to increase general comprehension and increase vocabulary skills. Examples of such books are: Brown Bear, Brown Bear, The Very Hungry Caterpillar,

and I Know An Old Lady Who Swallowed A Fly. (See Appendix G for complete references for these books.)

- Barrier games are excellent activities to do with verbal children with autism and their non-handicapped peers. They can use two sets of identical toys (e.g. dolls, furniture, blocks, cars, etc.), or it can be a paper and pencil activity. Each child has a set of toys and they sit across from each other with some kind of barrier between them. One child has to direct the other child to set up the toys in exactly the same positions as his own, using verbal cues only. This activity develops interactive skills, employs language repair strategies and increases vocabulary skills.

Behavior Modification Techniques and Current Treatment Programs

There is extensive literature outlining behaviour modification or behaviour management techniques. This paper will not go into great detail about this area, but will provide a brief summary of some established behaviour modification practices. The techniques and practices outlined here are applicable to many kinds of behaviour problems, not those just restricted to autism. It will become clear, however, from the discussion, that the unique characteristics of the child or adult with autism will force the practitioner of the techniques to be imaginative and at times, unconventional, in the administration

A non-verbal, fifteen year old girl with autism, really likes to play with strings. She spends a lot of time twirling strings in her fingers, especially shoe laces. One day, the girl's teacher attempted to twirl a shoe lace in the same manner as the young girl, but the teacher could not. The girl took the lace away from the teacher and very patiently instructed the teacher in the art of shoe lace twirling.

of them! In the following section, I will use the term "child" or "children" when discussing remediation techniques, however, many of these same tactics will be effective when used with adults with autism as well.

Behaviour Management

The following behaviour management techniques are adapted from the work of Schreibman (1994):

- **Positive Reinforcement** - This is when the practitioner rewards a behaviour by presenting a positive reinforcer immediately after the behaviour. This technique strengthens the behaviour.
- **Negative Reinforcement** - This is when a negative reinforcer follows immediately after the behaviour. A negative reinforcement usually means the child is trying to escape or avoid a negative event (e.g. a child might engage in self-abuse in order to avoid completion of a task because he or she has learned that when they self-abuse, the demand is dropped - the self-abuse becomes rewarding for the child). This technique also strengthens a behaviour.
- **Prompting** - Prompting of a skill is used when a child or adult with autism has no existing skill that needs retraining in the first place. Prompting is used to encourage and guide the child to develop a new skill. Schreibman (1994) stresses that "The only requirement of prompts is that they be functional in leading to the correct performance of the behaviour (i.e., they must work) and that they ultimately be removed or 'faded' so that the individual can perform the response unprompted" (p. 17).

- **Shaping** - This technique is also used to teach new skills to the person with autism. In shaping, the practitioner reinforces approximations to the correct response. Gradually, the child is rewarded for responses that more closely resemble the correct response, until the desired response is produced by the child.
- **Chaining** - With chaining, the practitioner breaks the target task into component parts and teaches the child each step one at a time, until he or she can complete the entire task independently.
- **Extinction** - Extinction is a very effective method for decreasing or eliminating a behaviour. In extinction, the practitioner simply stops rewarding the inappropriate behaviour. For example, some children with autism engage in tantrums or begin to self-abuse in order to avoid completing a task or demand. If the practitioner allows the child to stop the task when these inappropriate behaviours surface, the child is being rewarded for engaging in those behaviours.

Whenever a young eight-year old girl with autism is disciplined, even in the mildest way, she always strikes out at staff. However, she strikes out at other staff members, not at the one who scolded her.

With extinction, the practitioner expects the child to continue with the task or demand, even though he or she may be tantrumming or self-abusing; in other words, the child is not rewarded for engaging in inappropriate behaviours. It is common, when extinction is first used with a child, for the child to engage in more inappropriate behaviours. He or she is attempting to gain the rewards

back again. Also, the extinction process is usually a slow process; the behaviours are eliminated gradually.

- **Punishment** - The use of punishment in behaviour modification is usually considered to be a "last resort" measure; that is, only used when everything else has been tried and nothing else will work. Punishment does not have to be physical in nature. Often, the term punishment is associated with cruel or inhuman methods of controlling children. Schreibman (1994) describes punishment quite differently:

> When behavior modifiers speak of punishment, they are merely describing a situation where the occurrence of an undesirable behavior is followed by an event the individual finds aversive. This event can be anything from a frown or gentle "no" to more severe aversives such as a loud "NO" or a spank, and so forth. In fact anything can be a punisher if the individual does not like it. If a child hates candy, then candy could serve as a punisher. (p. 19)

An important point to remember when using punishment techniques with children is that punishment only serves to stop a behaviour. Punishment does not it in itself, teach new behaviours. Therefore, practitioners must teach more appropriate behaviours at the same time as using punishment to decrease inappropriate behaviours. Schreibman (1994) ends her discussion of punishment by stating that practitioners must strive towards limiting the use of aversive punishment, whenever possible. She continues with the following thought:

> One must be concerned with preserving the rights and dignity of the individual. However, we must also be concerned with maximizing the opportunities available for the individual to participate as fully as possible in the community and society. It may be the case that if the only currently effective treatment for a behavior involves an aversive, and we do not make the treatment available, we may be denying the individual their right to a full and happy life in society. (p. 27)

- **Overcorrection** - Overcorrection procedures requires the child to engage in some "effortful behavior (aversive stimulus) contingent upon the target behavior excess" (Schreibman, 1994, p. 20). For example, if a child purposefully knocks his or her drink on the floor, the practitioner expects the child to clean up the mess, as well as to scrub some additional floor space as the overcorrection measure.

- **Punishment by withdrawal** - Punishment by withdrawal is also known as the response cost method. Quite simply, punishment by withdrawal is removing something valued by the child after he or she displays inappropriate behaviour. For example, it is quite common in school settings to "take away" a child's recess privilege after he or she has engaged in some type of disruptive behaviour in the classroom.
- **Time-out** - The time-out procedure is also commonly used in schools, and by parents. With time-out, following an inappropriate behaviour, the child is removed from the setting and not allowed any positive reinforcements for a specified time period. This specified time period varies from child to child, but it is common practice to send a child to a time-out setting for a minimum of 5 minutes to a maximum of 20 minutes. It is important to make the setting from which the child has been removed more attractive than the time-out setting. This is especially important for children with autism. Frequently they want to

be left alone and enjoy the time-out setting. Thus, the time out setting becomes a reward for the child with autism.

- **Non-aversive strategies** - There are many ways in which to deal with the inappropriate behaviours of individuals with autism. Often many programs focus only on the punishment of these behaviours and many of the treatment strategies are considered aversive or punitive measures (LaVigna, 1987). LaVigna proposes that non-aversive strategies can be used in treatment plans, as opposed to punishment techniques such as time-out and overcorrection. LaVigna states that "Empirical evidence and clinical experience strongly support the position that punishment is only rarely if ever needed, even to solve the most difficult problems" (p. 423). LaVigna outlines some of the non-aversive strategies that can and should be used in treatment programs with autistic people:

    1. Differential Reinforcement of Alternative Behavior (Alt-R) - The reinforcement of behaviors that are incompatible with the undesired response in intensity, duration, or topography.
    2. Differential Reinforcement of Low Rates of Responding (DRL) - The reinforcement of the undesired response only if at least a specified period of time has elapsed since the last response, or only if fewer than a specified number of the undesired responses occurred during a preceding interval of time.
    3. Differential Reinforcement of Other Behaviors (DRO) - Reinforcement after a specified period of no undesired responding.

4. Stimulus Control - Establishing the discriminative control of an undesired behavior, either through differential reinforcement or fading.
5. Instructional Control - The differential reinforcement of those responses which are in compliance with the verbal instruction presented.
6. Stimulus Satiation - The continued noncontingent presentation or availability of a reinforcer that reduces the reinforcer's effectiveness.
7. Additive Procedures - The combination of two or more procedures in order to reduce or eliminate an undesired behavior.
8. Programming - An instructional sequence designed to help the person reach certain behavioral objectives based on a functional analysis and involving the systematic manipulation of stimulus conditions, consequences, instructional stimuli, and other variables that have a functional relationship with the behavior. (LaVigna, 1987)

One young man with autism will only eat peanut butter sandwiches cut in a particular way. He will get upset if the sandwiches are not cut properly. The comment was made to the mother that his caregivers in the future may not be so precise in cutting the sandwiches. The mother replied, "I don't care, as long as I can get him to eat something today."

Lovaas' (1981) program was described in Chapter 1. His program consists of using behaviour modification techniques, such as the ones just described. Lovaas promotes his methods and techniques

as desirable and successful ways to deal with people with autism. He provides guidelines for practitioners interested in using his methods with children who are autistic. The following has been taken from the teaching manual that Lovaas developed:

> All persons who consistently interact with developmentally disabled persons have to learn to be teachers....
> Set small goals in the beginning so that both you and your child will be rewarded. Find pleasure in small steps forward....
> Be prepared for much hard work. Protect yourself from burn-out by forming a "teaching team"....
> Have your child work for what he wants; make him responsible....
> Try not to be frightened or feel guilty by the child's emotional outbursts or withdrawal. You are the boss, you make the decisions....
> Begin by making the child's appearance as normal as possible. (p. 3 -5)

Self-Injurious Behavior

Self-injurious behaviour (SIB) can be defined as any behaviour that causes physical damage to the person exhibiting this behaviour (Favell & Greene, 1980). SIB is often considered to be a learned behaviour, and the person with autism may continue this destructive behaviour because it produces some kind of change in the environment which he or she feel is desirable. Favell and Greene (1980) state that there are three consequences of SIB that may strengthen or maintain the abusive behaviour. The autistic person with SIB may receive positive rewards when engaged in self-abuse. For example, it may be a good way to get either positive or negative attention. The SIB may be an avoidance

behaviour. The person may engage in SIB when he or she does not want to do a certain task; "self-injury is rewarded and strengthened by allowing the individuals to escape or avoid what are to them unpleasant situations" (Flavell & Greene, 1980, p. 3). And finally, SIB may produce sensory stimulation that the autistic person may find enjoyable.

There are many treatment programs for people who are self-injurious. Many programs are based on behaviour modification principles and practices. It is important to precede a treatment program based on behaviour modification techniques with a thorough medical examination. In some cases, SIB is exacerbated by an existing medical condition, for example, an ear infection, allergy or dental problem. Also, some people who self-abuse cause internal damage that is not visible to the eye, and should therefore have an examination to rule out and treat any complications from the SIB. Some examples of this are eye damage from head banging, internal haemorrhaging from pica behaviour, or malnutrition from rumination (Iwata, Zarcone, Vollmer & Smith, 1994).

Flavell and Greene (1980) offer the following behaviour modification suggestions for practitioners who are setting up treatment programs for individuals with SIB:

- Alter the situations in which SIB occurs and extend the periods when SIB does not happen. The practitioner must observe when the SIB most frequently occurs and when the person with autism does not engage in SIB.

For example, does the person engage in SIB before meals? Perhaps he or she is too hungry to wait until mealtime and a small snack would prevent the SIB from occurring. It is important to reward the autistic person during times when SIB is not occurring and to extend these times if possible. For example, if the person does not usually engage in SIB while playing with a certain toy or object, perhaps he or she could be allowed to have this toy during "down times" in the day.

A young thirteen year old girl with autism is abusive towards others in her environment. She will head butt, unpredictably, backwards into the stomachs or chests of her caregivers. She will also slap the face of an adult when given a task to complete.

- Provide stimulation in other ways by enriching the environment. Provide "constant access to toys and activities that the individual prefers, changing activities as the individual's preference and attention changes, and eliminating excessive waiting and 'down-time" (Flavell & Greene, 1980, p. 18). It is also important to remember to provide lots of positive interactions between the teacher and student, professional and client, etc. Use a powerful reward to strengthen appropriate behaviours and try to withhold the same rewards following a SIB incident. For example, if a person with autism enjoys the holding and patting he or she receives after a SIB incident, perhaps he or she could be held and patted after a few minutes of appropriate behaviours. Flavell and Greene (1980) assert that "only when

the individual receives more rewards for these behaviors than he or she gets for self-injury will treatment be successful" (p. 24).

- Remove rewards for SIB. Try to reduce the attention paid to the person following a SIB incident. Often the self-injury becomes worse when this method is utilised, or the improvement is very slow. If the rewarding and non-rewarding of the SIB is inconsistent, the person may continue to engage in the self-abuse, looking for the opportunities to be rewarded. Also, the issue of safety must be considered when this method is utilised. Practitioners cannot ignore severe self-injury. However, practitioners can try to protect the individual as much as possible (e.g. helmets, padded tables, etc.), while paying low-key attention to the behaviour.
- A last resort measure may be to punish the self-abuse. Punishment is typically only considered when other methods have been tried and have failed, the self-injury interferes with daily activities and "severe self-injury places the individual in serious danger of blindness, disfigurement or other harm" (Flavell & Greene, 1980, p. 31). Punishment should be administered immediately after a SIB incident, with the intention of reducing the behaviour, not just interrupting it. Punishers will vary from person to person and each punishment should be followed by a verbal reprimand such as "No! Don't hit!" (p. 32). Possible punishers have already been discussed in this handbook.

A young woman with autism will often come to school with food in her mouth and keep it there for the whole day. 102

They include such things as time-out, overcorrection, and aversives.

Treatment for self-injury generally proceeds at a slow pace and must continue for an indefinite time in order to remain effective. Treatment must occur in all situations; in the home, school, and community. Treatment can gradually be reduced or altered to fit more naturally into the person's life. The main purpose of treatment is to always attempt to replace self-abusive behaviours with appropriate behaviours.

Self-Restraint

Self-restraint is a phenomenon that sometimes occurs along with self-abusive behaviours. Self-restraint is defined as "self-initiated confinement incompatible with SIB or preference for such confinement" (Iwata, Zarcone, Vollmer & Smith, 1994, p. 144). Self-restraint can take various forms; the individual may self-restrain by placing his or her arms inside an article of clothing, such as a shirt or jacket or wrap their arms in towels or other large pieces of cloth. The individual may hold onto objects, seemingly as a way to prevent SIB. Or the individual may show a preference for mechanical restraints.

Individuals who practice self-restraint tend to engage in serious self-abuse when not allowed to self-restrain. Thus, the self-restraining behaviour may interfere with the treatment of the SIB. Also, continuous self-restraint can lead to problems with "muscular atrophy, arrested motor development, limited range of motion, and loss of function" (Iwata et al., 1994, p. 144).

The literature in the area of self-restraint shows that there are primarily two ways to deal with this behaviour. One method uses the self-restraint as a reward

for longer and longer periods of non-SIB. An example of this method can be seen in the work of Favell, McGimsey and Jones done in 1978 (as cited in Iwata et al., 1994):

> Working with individuals who exhibited a preference for mechanical restraints, the investigators arranged a contingency in which access to restraints was available following increasingly longer time intervals during which the subjects exhibited no SIB. Thus, restraints were used as reinforcers for the absence of SIB, qualifying the procedure as an example of differential reinforcement of other behavior... (p. 144)

A second method that has been used in order to eliminate self-restraint uses the behaviour modification technique of shaping and fading. The self-restraint behaviour is gradually changed from something totally inappropriate to something more socially acceptable. For example, researchers:

> were able to fade restraints almost completely for two individuals who self-restrained, wore restraints and exhibited SIB. For one individual, full-arm splints were gradually shortened and then finally replaced with tennis wristbands. For the second individual, self-restraint (hands in pants) was first transferred to another restraint (inflatable arm splints) and then later faded by reducing the air pressure in the splints. In both cases, intensive treatment was aimed at strengthening alternative behavior (play with toys and compliance with training tasks) as restraints were faded. (Iwata et al., 1994, p. 145)

Drug Therapy

The use of drugs in the treatment of autism and self-injurious behaviours has been common practice for several years. Temple Grandin (1992) an individual with autism, testifies to the success of drug therapy for her and advocates the use of medication for other people with autism. She states that antidepressant drugs such as Tofranil and Prozac can be effective for high

functioning adolescents and adults with autism. The antidepressant drugs seem to alleviate the symptoms of anxiety that many people with autism feel: the drugs "have been very effective in autistics who have obsessive-compulsive symptoms or obsessive thoughts which race through their heads" (Grandin, 1992, p. 112).

Opiate antagonists have been used in the treatment of self-abusive behaviours (Iwata, et al., 1994). This class of drugs effectively increases pain sensitivity in the individual taking the medication. This makes it a good drug to give to SIB patients because it lowers their pain threshold. Iwata et al. (1994) have reviewed the literature regarding the efficacy of opiate antagonists and have concluded that "much of the research to date has not been well controlled and findings have been mixed, suppression of SIB with the opiate antagonists has been superior to that found with other drugs" (p. 152).

Chapter 3

Case Study

The following chapter contains the case study of a young boy who displays many of the characteristics of Asperger's syndrome and hyperlexia. This young boy was followed as part of a study on children with high-functioning autism.

FAMILY HISTORY

Current Placement

John is a five year-old boy diagnosed with autism. The initial diagnosis was made when John was three years old. John currently attends an integrated preschool, four afternoons per week. John's preschool class consists of ten normally developing children, and five special needs children including John. In addition, John attends a swimming class and a music class each once a week. John's classmates in both swimming and music class are normally developing, same-age peers. John also participates in a speech and language class for special needs children, two mornings per week.

Prenatal - Birth History

John's mother reports that her pregnancy with John was considered a high-risk pregnancy. Contractions were monitored, throughout the pregnancy, beginning at approximately 20 weeks into the gestation period and were then monitored continually throughout the pregnancy. John's mother was hospitalised several times for spotting and contractions during the pregnancy. The baby arrived late; John's mother delivered at approximately 42 weeks. The mother reports that it was a difficult birth and forceps were used. The baby was treated

for jaundice, both in the hospital and for several days after discharge from the hospital. Mother and baby stayed in the hospital for four to five days.

Developmental History and Delay

The mother reports that John was sitting at six months of age and was walking by 14 months of age. All developmental milestones were reported as occurring at the appropriate ages. The one exception was speech and language. John's language development was delayed. He was a very quiet baby and his early vocalisations consisted of echolalia. John would repeat sentences and phrases he heard on television. Also, he would repeat sentences and questions directed at himself spoken by his parents.

John's parents first thought something might be wrong with John because of his delayed speech and language. John did begin to talk around the age of two. His first word was "juice" This differs from typical children, whose first words might be "mama", "dada", "oh-oh", or "bye-bye". John also differed from typically developing children in that he did not use pointing or gestures as a means of requesting items. Many of John's early words were non-communicative and non-functional. For example, John would memorise slogans from the grocery store. He was able to recognise all the letters of the alphabet, many numbers and some commercial logos by the age of two and one-half. By the age of three and one-half John was a proficient reader. John's parents were doubtful about the initial diagnosis of autism because John was very sociable and affectionate. This was not what they understood autism to be at that time. John loved attention. He seemed very bright. The parents felt John simply had a communication disorder that would eventually improve.

Strengths

After the initial delay in speech and language, John gradually developed good oral language and grammar skills. As well, John has displayed extraordinary reading skills from the age of two. John is able to socialise , in an appropriate manner, with adults. In fact, John prefers the company of adults rather than with same age peers.

Family

John's parents are a professional couple. John is an only child.

DIAGNOSTIC INFORMATION

Two Years Old

In October of 1993, when John was two and one-half years old, a psychologist evaluated John and noted that his language consisted of echolalia and the parroting of other's speech. John was also beginning to use two-three word sentences at this point. The psychologist reported that John could recognise all 26 letters of the alphabet, many numbers and some logos. John could also read a few sight words, but did not know the meanings of all the words he could read.

A physician noted in a report when John was two years-eight months old, that the baby was treated for several ear infections from birth until the date of the report. John's parents took him to an allergy specialist when he was two years and eleven months old. The specialist simply noted that John was a picky eater.

Three Years Old

The first time the diagnosis of autism was mentioned to the family was when John was evaluated at another centre. The examining physician noted that John had difficulty answering questions, especially how and why questions.

The physician noticed that John perseverated on activities such as playing with the toy Magna-Doodle, and having his mother draw letters and shapes on a chalkboard. The physician also noted that John did not approach other children appropriately. Rather, he pushed children away upon meeting them for the first time. John appeared to display no concept of danger and his attention was constantly fixed on doors that opened and closed.

John was evaluated by another psychologist when he was three years and five months old. The psychologist noted that on a reading comprehension subtest, John scored at the grade two level. This indicated that John had some understanding of what he could read.

Service Agencies

Between the ages of two and four, John has been involved with many service agencies. John's mother first reacted to these various agencies with some amount of frustration. She felt that many professionals were not knowledgeable enough about high-functioning autism. John's mother has since learned to be vocal regarding the issues involved in raising a child with high-functioning autism. In fact, John's mother indicates that advocating for John and searching for appropriate services for John is a full-time job for her at this point.

CHARACTERISTICS AND BEHAVIOURS RELATED TO AUTISM

Social Skills and Social Cues

John's weaknesses include a lack of social interaction skills and weak comprehension skills, both listening comprehension and reading comprehension. Because of John's weakness in the area of social interaction, he lacks certain social skills and the awareness of social rules. This makes it difficult for John to

interact meaningfully and appropriately with same-age peers. For example, it was observed in the preschool setting that John rarely spoke to other students in the class. John would engage in some parallel play, but it was never initiated by John. John preferred to play by himself on the computer or at the listening centre. John did not enjoy sharing toys with peers and he did not allow others to play with him.

John also demonstrated several times in the preschool setting that he lacked understanding of certain social cues. He would occasionally become demonstrative with another student. This would often involve hugging, tickling or slapping the child on the back in a friendly manner. In most cases, the other child would tolerate this behaviour for one or two minutes. After that, he or she would begin to shrug off John's advances and try to back away from John. John did not seem to realise what these subtle actions meant; he would continue with the behaviours until told to stop by an adult.

Obsessions

John will engage in stereotypical handflapping when anxious, as well as mouth his fingers and hands. Occasionally John has slapped his face when frustrated, but he has always been able to stop himself when told by an adult to quit.

John, at one time, greeted people by weight and age, rather than by name. His special interests include calendars, catalogues, and objects to weigh and measure. Most of John's fixations and obsessions revolve around numbers. For example, one day while at school, John was examining a vegetable seed package. He read out every number on the package and kept telling the teacher the numbers, disrupting the planned activity. Another time, John engaged one of the teachers in a conversation regarding people and how much they weigh. He

told the teacher that he weighed 50 pounds and immediately upon being told that another child weighed 25 pounds, exclaimed, "She's half as much as me!" He then told the teacher that his father weighed 180 pounds and that was three times as much as 60 pounds.

John also is fascinated with buttons that need to be pushed on computers, elevators, and electric doors, and the like. It was noted several times in the preschool that John would dominate the computer keyboard and push many buttons. He also enjoyed pushing the buttons on the tape recorder at the listening centre. John would often press an elevator button while walking down the hall with his class. John's mother reports that John will often stand beside an electric door and repeatedly push the button that activates the door. In fact, she often has trouble getting John away from such doors.

Comprehension

John is a nice-looking, handsome child and is very articulate. Nevertheless, John often lacks the comprehension to go along with his sophisticated oral language skills. John's mother is concerned that people who do not know John will assume that he understands things, when in fact, he does not. For example, in music class the students were requested to choose a particular colour and to sing a short verse about that colour. All the students wearing that colour were to stand up as one child sang the verse. On that particular day, John was wearing the colours *white*, *grey*, and *blue*. He needed help finding them on himself and then to stand up at the appropriate time. John sang the required verse by himself when it was his turn, which happened to be last. However, he sang, "Who is wearing *colours*?" rather than "Who is wearing (a specific colour)?"

Another example of John's comprehension difficulty was noted in a speech and language class. The class was discussing different types of vehicles. John was asked if he could identify a picture of a Volkswagen. John could not, so the teacher explained it to John. In response, John said, "You know a bug is like an old car - it starts at 25" John was referring to the number of years; in other words, a car starts out at age 25. It seems that John was trying to connect the slang term "bug" used to describe the Volkswagen and the concept of "car". He used his fixation with numbers to relate the two concepts in his mind.

It was also noted by teachers at the preschool that John did not laugh at funny sections of stories, poems or movies. This indicates that his understanding of language varies from the normally developing child of the same age who is often able to recognise humour in stories.

Perseveration

John will often perservate on a certain activity or even repeat a particular comment over and over again. For example, one day at preschool, John and several other students were playing with a toy that made various noises when certain buttons were pushed. After a short time, the other students left to find other toys with which to play. John, however, played with that same toy for twenty minutes by himself. In fact, he only pressed one button repeatedly.

Fine Motor Co-ordination

John often displays problems with fine motor co-ordination skills. For example, in preschool, John had difficulty forming some of the letters of his name with play dough. In fact, he needed a model to copy from and some hand-over-hand assistance. John also had trouble holding the paintbrush appropriately and easily while painting at the preschool.

Other Special Characteristics

John is a very interesting child with many interesting characteristics and behaviours. John's special interest in numbers translates into some extraordinary abilities not often seen in typical children of the same age. For example, in preschool, a common winter activity was to record the daily temperature on a large thermometer and chart. John often would compare the temperatures and could tell the teacher which was the coldest day recorded and which days had the same temperatures.

John is fascinated with computers and spent a lot of time on the computer at the preschool. One day in his speech and language class, the teacher introduced the CD-ROM to the students. John got very excited about this and quickly learned the new sequence for operating the program. He was most concerned with the process of pushing the buttons and changing the screens. He quickly memorised the symbols which indicated which pictures on the screen had the option of sound and which did not.

Some of the teachers at the preschool noticed the way John interacted with peers at the computer at the beginning of the school year. Every time John had a partner playing at the computer with him, he would constantly help his partner by placing his hand over his partner's hand, thereby guiding the button pushing. The teachers would verbally tell John, "It's not your turn, it's _____'s turn." However, John would continue with this hand-over-hand behaviour. The staff wondered if John thought that he was engaging in turn-taking behaviour.

John also has some problems with sensory perception. He sometimes cannot distinguish between hot and cold. John often does not respond to pain. For example, John's mother reports that one evening she noticed blisters that

were bleeding on the heels of John's feet. John had worn a pair of new shoes all day and not once complained of his feet hurting or being uncomfortable.

John is very rigid in his thinking and will sometimes get quite upset by events that do not make sense to him. John spends his time at home by following his mother around the house, asking her endless questions and wanting to help with her daily chores. He also likes to read the TV. and VCR. instruction manuals on his own.

Many of the behaviours outlined in this section can be found described in fuller detail in Appendix H and I.

Strategies and Educational Practices That Have Helped

The objectives for John's intervention program were fairly simple. The team working with John decided that three main areas needed to be dealt with in order for John to begin making progress in the social skills area. John needs to play with other toys besides the computer during his preschool class, to learn how to take turns, and to learn how to properly begin a conversation with his peers.

Some of the strategies used to reach these goals are discussed in the following sections. See Appendix J for the formal lesson plan used in John's program.

Integrated Play Group

The integrated play group situation, as described in Chapter 2, did not work very well with John. Initially John was paired with a same-age peer from his preschool class, and the two children were guided through a play scenario. The two major problems with this approach were that the typical four-year old did

not always want to play with John at the time when the play group was scheduled. Also, the attention span of the typical four-year old is short and often the peer was ready to leave the play situation before all the goals were accomplished. It was decided to pair John with a slightly older, typical child, which worked much better. The older child could sustain longer play contact, would persevere when John ignored them and could guide John in the play routines.

Individual Play Schedule

The individual play schedule, also described in Chapter 1, began as a complex schedule intended to guide John through every minute of the preschool afternoon. It was soon apparent that this schedule was not working for John. He appeared uncomfortable with it and did not always co-operate. There seemed to be far too much detail in the schedule for John. Additionally, it was obvious that John could follow the regular preschool schedule very well on his own. Upon reflection, it was decided to use the schedule format only during free time. It was hoped that this would help John to expand his free time routines. As it turned out, this modified play schedule was exactly what John needed. It forced him to play with toys and with other children which he would not normally do on his own.

A more detailed description of the individual play schedule can be found in Chapter 2. The individual play schedule falls under the heading of Activity Routines. The actual play schedule used with John can be found in Appendix E.

Crafts

John's behaviour and attitude towards the daily craft activity in the preschool changed drastically about half-way through the year. John began the

school year by showing little interest in completing the craft and he had to be persuaded to take part in the activity. However, about half-way through the year, the preschool teacher began demonstrating the day's craft during Circle Time. He would show the students all the materials required to complete the craft, and then he would demonstrate each step in the completion of the craft. John was always attentive during these instructions, and often would go straight to the craft table as soon as Circle Time was done. Other times he would choose to play at a centre, but would willingly come to the craft table when called. John would complete the craft, most times, independently. At times he would have difficulty completing the craft properly, because his fine motor skills are immature.

Progress Noted Throughout Preschool Year

Social Skills

John made many gains throughout the year. Much of this progress was in the area of social skills and peer relationships. John's increased proficiency in these areas were noticed in the preschool classroom. For example, at the beginning of the November, John was noticed taking turns at the computer with another student. John had been prompted to take turns at the beginning of the play session. He was able to carry on with the turn-taking procedure for several minutes.

In March it was noted that John was taking turns with one other student at the computer. This turn-taking episode was not prompted; John and partner initiated it on their own.

Individual Play Schedule

Perhaps the most notable change in John's behaviour revolved around the use of the individual play schedule. Before the schedule was introduced, John would typically occupy his free time at preschool by either playing by himself on the computer or he would listen to audio tapes, again, by himself. John would neither initiate any social interactions with same-age peers, nor would he play with the wide variety of toys available in the preschool.

The introduction of the individual play schedule forced John to break away from the isolating routine of sitting alone at the computer or the tape recorder. Although John had been encouraged before this to increase his interactions with his peers and his environment, this encouragement was always delivered verbally to John. John did not respond positively to verbal commands and suggestions. However, viewing the play choices in a written format motivated John to try some new activities.

The progress was slow at first. For example, shortly after the individual play schedule was introduced, John could only be coaxed to leave the tape recorder and engage in some parallel play for approximately five minutes. After a few sessions gaining experience with the schedule, John's play behaviour changed significantly. Gradually, John moved from referring to the schedule frequently to not needing the concrete, visual aide at all. By the end of the school year, John would willingly respond to suggestions presented orally by an adult (e.g. "John, please join us at the craft table." or "John, would you like to play a game with _____?") John also initiated social interactions after exposure to the play schedule strategy. He was noticed in March initiating play on his own. Also in March, he spontaneously joined another child already involved in a play routine. In May, John rejoined a group of children, on his own, to continue playing after he had been called away to complete an art activity.

The complete set of observational notes can be found in Appendix H. They highlight several areas in which progress was recorded.

Future Prospects and Concerns

Educational Needs

John is classified as autistic and consequently will need special consideration from the school system. There are some strategies and approaches that seem to work for John and the implementation of them should help John with his school career. One of the strategies that worked well with John in the preschool involved transitional aides. John often resisted moving from one activity to another if not properly prepared. Simply telling John that in two minutes he would have to move on to another activity seemed to help to prepare him mentally for that activity. Setting a timer and telling John that when the timer sounded it was time to move into another activity was another helpful strategy that the preschool teacher used with John.

John might enjoy participating is some activities that centre around music. John liked to listen to music in the preschool and often moved his body in time to the beat. In his community music class, he was able to learn the beat of various songs after given the opportunity to practice. Perhaps some one-on-one instruction on a rhythm instrument would be beneficial for John.

John very rarely participated in group singing activities both at the preschool and during the community music classes. A social story about singing in a group may encourage John to participate in this activity more often. However, it seems that John has difficulty doing two things at once, especially if one of the activities involves language. John's performance will have to be monitored if a social story is developed for group singing. John may not learn this skill quickly because it involves language.

John may need to use a tool such as an individual play schedule in Kindergarten. This tool will help John to expand his play skills and will motivate him to play with his same-age peers.

Parental Concerns

John's parents want him to be happy when he grows up, regardless of what career path he chooses. They want him to have friends and to get along with his peers. Their nightmare for John would be for him to be socially isolated, to be looked on as strange and to be made fun of by others.

The long-term prognosis made by a psychologist when John was three and one-half years old indicated that John will likely make good progress in many areas, because he is only mildly handicapped. The psychologist stated in the report, however, that John may always be socially awkward and even possibly socially isolated as he grows up.

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Appendix A

Diagnostic Criteria for Autistic Disorder

A. A total of six (or more) items from (1), (2), and (3), with at least two from (1), and one each from (2) and (3):

(1) qualitative impairment in social interaction, as manifested by at least two of the following:

(a) marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction

(b) failure to develop peer relationships appropriate to developmental level

(c) a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest)

(d) lack of social or emotional reciprocity

(2) qualitative impairments in communication as manifested by at least one of the following:

(a) delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime)

(b) in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others

(c) stereotyped and repetitive use of language or idiosyncratic language

(d) lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level

(3) restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:

(a) encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus

(b) apparently inflexible adherence to specific, nonfunctional routines or rituals

(c) stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)

(d) persistent preoccupation with parts of objects

B. Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play.

C. The disturbance is not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder.

FROM:
American Psychiatric Association. (1994) Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author. (p. 70 - 71)

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Appendix B

Diagnostic Criteria for Asperger's Disorder

A. Qualitative impairment in social interaction, as manifested by at least two of the following:
   (1) marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction
   (2) failure to develop peer relationships appropriate to developmental level
   (3) a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest to other people)
   (4) lack of social or emotional reciprocity

B. Restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:
   (1) encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
   (2) apparently inflexible adherence to specific, nonfunctional routines or rituals
   (3) stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)
   (4) persistent preoccupation with parts of objects

C. The disturbance causes clinically significant impairment in social, occupational, or other important areas of functioning.

D. There is no clinically significant general delay in language (e.g., single words used by age 2 years, communicative phrases used by age 3 years).

E. There is no clinically significant delay in cognitive development or in the development of age-appropriate self-help skills, adaptive behavior (other than in social interaction), and curiosity about the environment in childhood.

F. Criteria are not met for another specific Pervasive Developmental Disorder or Schizophrenia.

FROM:
American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author. (p.77)

Appendix C

Diagnostic Criteria for Mental Retardation

A. Significantly subaverage intellectual functioning: an IQ of approximately 70 or below on an individually administered IQ test (for infants, a clinical judgment of significantly subaverage intellectual functioning).

B. Concurrent deficits or impairments in present adaptive functioning (i.e., the person's effectiveness in meeting the standards expected for his or her age by his or her cultural group) in at least two of the following areas: communication, self-care, home living, social/interpersonal skills, use of community resources, self-direction, functional academic skills, work, leisure, health, and safety.

C. The onset is before age 18 years.

Code based on degree of severity reflecting level of intellectual impairment:

317 **Mild Mental Retardation:** IQ level 50–55 to approximately 70
318.0 **Moderate Mental Retardation:** IQ level 35–40 to 50–55
318.1 **Severe Mental Retardation:** IQ level 20–25 to 35–40
318.2 **Profound Mental Retardation:** IQ level below 20 or 25
319 **Mental Retardation, Severity Unspecified:** when there is strong presumption of Mental Retardation but the person's intelligence is untestable by standard tests

FROM:
American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author. (p. 46)

Appendix D

Observation Forms

The following forms, the Play Preference Inventory, and the Profile of Individual Play Characteristics, were used to assist in the observation of John during preschool hours.

Play Preference Inventory

RECORDER:
DATE(S) OF OBSERVATION:

	NOVICE PLAYER 1	NOVICE PLAYER 2	EXPERT PLAYER 1	EXPERT PLAYER 2	EXPERT PLAYER 3
Play Materials What toys or props does child most often use or prefer? Describe features if applicable. (E.g., prefers round objects that can be spun, toys that move, realistic toys.)					
Interactions with Play Materials How does child interact with toys? (E.g., prefers to spin objects, lines up toys, conventional use of realistic objects.)					
Play Activities What play activities does child prefer ? (E.g., rough-housing, quiet play, hide and seek, constructive play.)					
Play Themes What play themes does child prefer? (E.g., familiar routines as grocery store or house, invented stories, fantasy play.)					
Peer Play With whom does the child prefer to play? (May be no one or more than one person, and may depend on the type of activity.)					
Additional Observations					

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Appendix D (continued)

Profile of Individual Play Characteristics

NOVICE PLAYER'S NAME:
RECORDER:

OBSERVATION DATE:		OBSERVATION DATE:	
CHARACTERISTICS	**DESCRIPTIONS**	**CHARACTERISTICS**	**DESCRIPTIONS**
SYMBOLIC DIMENSION No interaction Manipulation Functional Symbolic/pretend		SYMBOLIC DIMENSION No interaction Manipulation Functional Symbolic/pretend	
SOCIAL DIMENSION Isolate Orientation Parallel/proximity Common focus Common goal		SOCIAL DIMENSION Isolate Orientation Parallel/proximity Common focus Common goal	
COMMUNICATION Functions Means		COMMUNICATION Functions Means	
PLAY PREFERENCES Materials Activities Themes Peers		PLAY PREFERENCES Materials Activities Themes Peers	
ADDITIONAL REMARKS		ADDITIONAL REMARKS	

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FROM:

Wolfberg, P.J. (1995). Enhancing children's play. In K. Quill (Ed.), Teaching children with autism: Strategies to enhance communication and socialization (pp. 193 - 216). New York: Delmar Publishers Inc.

Appendix E

Individual Preschool Schedule

The individual preschool schedule was initially designed to encompass the complete preschool program. After some experimenting with the schedule, it became obvious that John did not need a schedule to guide him for the whole afternoon of preschool; he was able to follow the teacher's instructions and he did participate in most activities. However, he did seem to need extra guidance during the Free Time portion of the preschool program. John would typically choose activities that required little or no interaction with peers. For example, John would usually choose to play on the computer or go to the listening centre during Free Time. He would not respond to suggestions to play with other toys or to join other students in different activities.

The individual schedule, or script, as outlined below, is the initial draft that encompasses the whole preschool program. After a few sessions, the majority of the statements were removed from the schedule. Only statements pertaining to the use of Free Time were kept in the schedule.

Each of the following statements were printed on separate 8.5 x 5.5 pieces of paper. Each preschool day, nine of the statements were selected and inserted into plastic pockets mounted on yellow bristol board. Initially, the preschool teacher or teacher associate decided which statements would be included in John's schedule. Eventually, John was given more control over the procedure and was allowed to choose which activities he would participate in for each school day. Each section of the preschool was coloured coded. All the

statements and choices for Free Time have one particular coloured sticker attached to them, all the statements for gym class have a different coloured sticker on them, etc.

Some statements were deliberately created with blank spaces in them in order to allow for flexibility for the preschool staff. The teacher has the option of filling in the blanks to suit the activities that are planned for a particular day.

The statements that appeared on John's individual schedule are:

I will say hello to one student.

I will say hello to Tom (the teacher) and the teacher associate.

I will go to the other preschool classroom and sing songs.

I will go to _____ to _____.

I will play with the vehicles.

I will play on the computer.

I will help make soup.

I will help bake muffins.

I will help bake cookies.

I will help make _____.

I will ask a friend to play _____ with me.

I will play with puzzles.

I will play at the water table.

I will look at books.

I will build with the blocks.

I will paint at the paint easel.

I will play in the house corner today.

I will play in the sandbox.

I will listen to a tape at the listening centre.

I will dress up in the play clothes.

I will swing on the tire swing outside.

I will slide down the hill on a toboggan.

I will play on the slide and bridge outside.

I will cut paper using the scissores at the table.

I will paint at the table.

I will do the _____ craft.

I will sit on the toilet before I wash my hands.

I will wash my hands using soap.

I will wash my hands for snack without getting my sleeves wet.

I will set out the glasses for snack because I am the special helper.

I will set at the table for snack after I wash my hands.

I will choose a book or puzzle after I put my glass in the sink.

In the gym I will ask a friend to _____ with me.

In the gym I will play on the teeter-totter.

I will play the game in the gym.

In the gym I will climb the ladder and go down the slide.

In the gym I will play with a ball.

In the gym I will crawl through the tunnel.

I will try the actions for the songs at Circle Time.

I will try singing the songs at Circle Time.

I will choose one book in the library today.

I will listen to Tom read a story in the library.

I will follow the directions in my locker when it is time to go outside.

Individual Schedule for Home

The following statements appeared on a home schedule devised by John's mother and the early intervention worker:

I will get up and go to Mom and Dad's room to say hello.

I will go to my room to take off my clothes.

My clothes are laid out on my bed and I put on my clothes.

I pick up my dirty clothes and put them in the laundry basket.

Mom calls me to the table for breakfast.

I eat breakfast.

I tell Mom that I am finished and Mom and I go into the bathroom to get washed up.

I have free time until Mom says it is time to go.

I go to the living room and sit on the couch and read a book or watch TV.

Mom says it is time to go to language class/music class/swimming class.

I go to the front door and read my GET READY cards.

Individual Arriving and Departing Schedule for Preschool

The following statements were printed on cards which were attached to wall of John's locker at the preschool. They were visual reminders for appropriate arriving and departing behaviours. The statements were:

Arrival at Preschool	**Departure from Preschool**
I take off my gloves	I take off my shoes.
Hat	I put on my boots
coat	coat
boots.	hat
I put on my shoes.	gloves.
I go into the classroom.	I sit and wait.

Appendix F

Social Story for Taking Turns at the Computer

(Page 1) My name is John. I go to preschool at the 123 School. Tom is my preschool teacher. Sometimes Tom lets us play on the computer during Free Time.

(Page 2) Sometimes I choose to play on the computer. Sometimes I play by myself. Sometimes other children join me at the computer. Other children come to the computer because they want to play too. When someone else comes to the computer, we will take turns pressing buttons or using the mouse.

(Page 3) When another child is pushing a button or using the mouse, I keep my hands on my lap and wait for my turn. Sometimes I know the answer, but I will let the other person answer the question. When the other person is done, then it will be my turn.

(Page 4) Sometimes there may be three or four of us at the computer. Two children will be on the chairs, playing the computer game. The other children are just watching us play. May friend and I will take turns playing the game. I keep my hands on my lap while I wait for my turn.

(Page 5) We take turns on the computer because everyone at the computer will have fun when each person gets a turn. Taking turns is one thing friends do for each other. Tom is happy when we take turns on the computer.

Note: This social story was printed on yellow paper, in large letters, laminated and inserted into a binder. This social story was shared with his whole preschool class.

Appendix G

Special Bibliography

The following books were mentioned in Chapter 2, under the heading of Miscellaneous Strategies. These predictable storybooks can be used to help increase a child's vocabulary and comprehension skills. The books mentioned in Chapter 2 are:

1. Brown Bear, Brown Bear, What Do You See?

   Bill Martin

   H. Holt & Co., New York.

   1983

2. The Very Hungry Caterpillar

   Eric Carle

   The World Publishing Co., New York.

   1969

3. I Know an Old Lady Who Swallowed a Fly

   Abner Graboff

   Rand McNally, Illinois.

   1961

Appendix H

Observations

The following notes are taken from the hours of observations of John done by the author of this handbook (the graduate student) and by the classroom teacher associate. The main purposes for observing John were to document his social interaction skills, his peer interactions, and also to record any unusual behaviours that may interfere with appropriate social skill development.

The majority of the observations were done in the preschool classroom. Any observations that took place elsewhere are noted at the beginning of the observation notes.

OBSERVATION 1

DATE: September 25, 1995

TOTAL OBSERVATION TIME: 2 hours - 30 minutes

OBSERVER: graduate student

John followed instructions adequately. He was co-operative with others in the classroom. John would take turns on the computer when directed, but not when left alone. His partner was not very assertive and let John take turn after turn. John would often speak out of turn. He stared off into space, with a blank look in his eyes, quite often. During occupational therapy (OT), John sat quietly and waited for his turn, although he indicated by vocalisations that he wanted to go first. Awkward movements were noticed during the OT session. John fixated on the opening and closing of doors while walking from the classroom to another room in the centre.

OBSERVATION 2

DATE: October 17, 1995

TOTAL OBSERVATION TIME: 50 minutes

OBSERVER: teacher associate

1:10 John at computer. Two boys came to computer. One sat beside John but John did not acknowledge him. They stayed for about 10 seconds then left.

1:12 The preschool teacher played "Circle Song" - John turned off the computer but was almost the last to come to the circle.

1:14 The preschool teacher sang, "If you're happy and you know it" song. John did not participate until the preschool teacher came to shake his hand. John smiled at the other children beside him. John was distracted by Sam kicking a door. John scratched his nose for the song ("If you're a boy, scratch your nose")

1:16 John sat quietly while the weather chart was being done. The preschool teacher talked and John watched him with good eye contact. John was distracted for a couple of seconds by Andy's talking and squirming.

1:20 Andy was quite loud. John ignored him.

1:21 The preschool teacher announced play time. John went directly to the computer. One boy looked on but left. Another boy came and sat down at computer. They fought over the keyboard. The two boys grabbed it back and forth. The preschool teacher came and tried to reason with John and encouraged turn-taking. He said "Stop" to John and talked about turn-taking. When the preschool teacher left, John did not give the other boy a turn, but the other boy sat quietly, waiting.

1:24 John responded quickly to the teachers request to line up for class pictures.

1:26 The class walked down the hall. John talked briefly to a boy in the line-up. (The teacher associate was not sure who started the conversation.) John pushed the door button and the door handle. John read the "Language Interaction Program for Preschoolers" (LIPP) sign on the wall of the centre. He talked to a teacher associate a minute later about LIPP being cancelled because it was a holiday.

1:30 John followed the instructions of the photographer to move to the back row.

1:32 John' hands were in his mouth for picture taking. The preschool teacher asked him to keep them by his side and stand tall. He did for the first picture but not for the second. John waited for his individual picture by walking around for a bit then sat beside a classmate. John didn't talk to the boy, just sat beside him. While the class walked back down the hall, John pushed an elevator button as they passed by the elevator.

1:50 After the class returned to the room, John watched a little girl playing at the computer. John said to her, "You know what you'll play first." and "Push number 1 - 9...no, push the number...push number." Then John pushed the numbers for her. The preschool teacher came and said, "Mary, you push the numbers." The preschool teacher said to John, "Do you want to play too? You can sit down and wait until Mary is done." John watched while the preschool teacher stood there but then pushed the buttons for Mary when the preschool teacher left.

Summary: John followed directions from the teacher regarding the routines. He

played only at the computer. He had very little contact or conversation with other children. John did not seem to acknowledge the presence of other children.

OBSERVATION 3

DATE: October 18, 1995

TOTAL OBSERVATION TIME: 1 hour - 5 minutes

OBSERVER: graduate student

Turn-taking John took his turns on the computer at the same time as his partner. He waited patiently for several minutes to water his plant before asking for his turn. John pushed another child off a spinning toy while asking if he could have a turn at the same time. Then he would not give this same child another turn when asked.

Responds to suggestions John answered a child's question at the suggestion of the preschool teacher. He went to the computer at the suggestion of the graduate student.

Negotiates with peers to solve problems John continually manipulated the use of the spinning toy. There were three children, including John, playing with the toy. John would not let a fourth child join them. He said only three people were allowed in the group. (His rule - not anyone else's.) John told the fourth child to "Please go to the computer."(although by this time, the other two children had left the spinning toy activity). When the fourth child finally did get on the toy, John attempted to push him off of it. John regained the toy and the other boy asked for another turn. John said, "I'll count to ten, then give you a turn." John counted to ten and handed the toy to the other boy.

Responds to name Yes.

Engages in solitary play Yes, on the computer.

Engages in parallel play Did not observe any examples of this.

Shares toys and activities John remained on the spinning toy for several minutes longer than the other children wanted to (an example of perseveration behaviour). John would not share the spinning toy (see above notes).

Plays cooperatively with peers John gave the other child a turn on the spinning toy when he realised play time was almost over. He encouraged the boy with words and pushed him around on the toy.

Other John attended to the preschool teacher during Circle Time. John looked at picture cues. He did not sing or make gestures during songs even with encouragement from the teacher associate, except for one short time at the end of one song.

John tried to listen to a story, but he was quite distracted by the crying and fussing of two other students. John picked the correct weather sign and attached it to the correct number on a calendar that had nothing on it but numbers. John kept asking the preschool teacher how many days until his seeds sprouted, even though they had already sprouted. He perseverated on numbers involving plant growth to the preschool teacher and other children - even pushed the teacher's hand away when offered a plant to smell - he was too busy talking about numbers.

The observer interfered with a struggle over the spinning toy because the fourth child began hitting John. John verbally negotiated with the observer as to why the child should not be on the toy. When John wanted the child to get off the toy he said, "I'll count to three, then you get off."

John seemed to listen intently to the preschool teacher's instructions regarding snack preparation.

John comforted two different, crying children by patting them on the back or shoulder. John seemed to be repeating phrases he may have heard from adults, such as, "Thank you for listening" (a comment he made to a crying child during story time); "Yes, you may go to the bathroom" (which he said to the same crying child who was not allowed in the bathroom by the teacher); and "I'll count to 10, then get off." (referring to spinning toy).

NOTE: The above observation format was based on a combination of observation forms, taken from the following references:

Bachrach, A.W., Mosley, A.R., Swindle, F.L., & Wood, M.M. (1978). Developmental therapy for young children with autistic characteristics. Baltimore: University Park Press.

Quill, K.A. (Ed.). (1995). Teaching children with autism: Strategies to enhance communication and socialization. New York: Delmar Publishers, Inc.

Sargent, L.R. (1991). Social skills for school and community. Des Moines, Iowa: The Division on Mental Retardation of the Council for Exceptional Children.

Wood, M.M. (Ed.). (1979). The developmental therapy objectives: A self-instructional workbook. Baltimore: University Park Press.

OBSERVATION 4

DATE: October 19, 1995

TOTAL OBSERVATION TIME: 35 minutes

OBSERVER: teacher associate

1:00 John played with Andy, pushing buttons on an old telephone. John was content to let Andy hold the receiver while he pushed the buttons. Andy was happy with this situation as well.

1:06 John went to the computer. A little boy was already there. John repeated over and over, "Gotta take turns." They fought over the keyboard. John got it and the other boy left to get the preschool teacher. The preschool teacher talked with the boys. No response from John. As play continued John did look at the boy occasionally when he talked.

1:10 The other boy left and Bob came over. John said, "And how come it...?" Bob said, "I don't know... Look - push that." - Bob pushed the button himself. John let Bob push some buttons. (IS THIS A SMALL BREAKTHROUGH??)

1:11 A teacher associate came to take John's hand out of his mouth. John talked to her for a minute.

1:12 There seemed to be no communication among the boys at the computer centre. All eyes were focused on the computer screen. The teacher associate came back to talk about what was happening. Both boys talked to her about what was happening on the screen. Another boy came to the computer centre to look. The teacher associate talked to them about pressing different buttons to see what would happen. Both John and Bob were taking turns.

1:15 The teacher associate left. The boys took turns for about 30 seconds. Then John mostly dominated the board.

1:17 A parent volunteer came over. She watched John still taking all the turns. The parent volunteer talked to John and Bob. Both respond briefly. Bob talked to John - John didn't respond.

1:19 No communication taking place. Bob looked around at other toys. The parent volunteer sat down after Bob left to play with toys. She tried to talk with John. John either did not respond or he replied with one-word answers.

1:22 John pushed the same button on the computer repeatedly.

1:22 Tim came to look. The parent volunteer encouraged sharing. While the other boy pushed buttons John looked at the parent volunteer and talked to her for 5 -7 seconds - the longest time yet. Then John went back to pushing buttons.

1:26 John wanted parent helper to turn computer on and off.

1:27 The preschool teacher announced "Circle Time". John left the computer and looked at the calendars. Another preschool class entered the room. John sat near the computer, moved to the middle of the circle, then moved back to the computer.

1:30 John had his hands in his mouth. He looked at ceiling and at the other boys and girls while the preschool teacher sang an action song. John did not participate. He did not even look in the preschool teacher's direction.

1:31 John played with his lips and teeth, folded front lip down and played with it.

1:34 The preschool teacher sang a song. John did not watch the preschool teacher. He stuck his fingers in his mouth. John did not participate in the singing of a scary song, nor did he appear to be scared by the surprise at the end of the song nor the scary noise.

1:36 John did not participate in any finger plays. There was some eye contact with the preschool teacher and he watched some of the hand movements.

Summary: John chose to play on the computer almost every free play time. There was some parallel play but not initiated by John. John rarely spoke directly to other children, especially when he was playing on the computer. John spoke to the preschool teacher and the teacher associate and would take turns with

other children only when those adults were present. Bob chose to play with John, as well John seemed to talk directly to Bob more than to other children. John sometimes responded to the suggestions of the teacher and teacher associate, but only when they were near. He went back to his way of playing when they left. He chose solitary play at the computer. John preferred this and did not enjoy sharing when another child came along. He did not invite anyone to come and play.

OBSERVATION 5

DATE: October 25, 1995

TOTAL OBSERVATION TIME: 1 hour - 9 minutes

OBSERVER: graduate student

1:06 John wandered around the room for a bit, then played on the floor by himself with a small toy. Jim joined him, but the preschool teacher called for Circle Time immediately thereafter.

1:10 John went quickly for Circle Time and sat quietly. He nodded his head in time to one song, but did not sing. He did not participate in action songs, but did smile occasionally. He even laughed at one point. He paid good attention to the story. During a song entitled, "If you're happy and you know it", John participated in the verse that went "If you're a boy, stand up." His hands were in his mouth most of the time.

1:30 Two other preschool classes joined John's class for videos. John watched videos quietly; did not laugh or smile at the funny parts.

2:05 John watched the teacher from another preschool class as she rewound the videos. He questioned her about why she was rewinding the tape. He examined the VCR.

2:07 John played on the computer by himself for a short time. Then Sam joined him and took control of the mouse. John politely, but repeatedly asked for a certain move to be made. Sam would not co-operate. Sam declared, "NO SHARING!" John asked once again to share the mouse, at the preschool teacher's coaching. Sam left. Dick then came and sat at the computer with John. Both boys took turns sharing the control of the mouse, with John giving lots of directions. Then, Dick kept control of the mouse and the boys discussed together what moves to make and co-operated quite nicely. Dick left. John was playing at the computer by himself when the observer left.

OBSERVATION 6

DATE: October 30, 1995

TOTAL OBSERVATION TIME: 15 minutes

OBSERVER: teacher associate

1:45 John was at the craft table. John glued sparkles onto paper. He finished and walked to the house centre. He pushed buttons on the phone. John was by himself.

1:46 Harry said something to John, but John did not respond.

1:47 John went to the cash register and pushed some buttons. He engaged in some parallel play with other children at the same centre.

1:48 The preschool teacher had several children around him. John watched but did not join in.

1:49 John went to the tape recorder and briefly pushed buttons. Then he went to the preschool teacher, momentarily.

1:51 The preschool teacher began to sing the "Clean-Up Song". John went to the cash register, pushed buttons and chewed his thumb. He looked at the toys

in the house centre then pushed the buttons on the tape recorder. John walked to the Circle, then back to tape recorder. John heard the teacher associate talk to Tim about the light switches; he walked over to them. John was distracted by Bob in the preschool teacher's office. He went over to the office and played with the key in the door. John then stood in Circle Area and briefly talked to the preschool teacher.

2:00 John lined up for library.

OBSERVATION 7

DATE: November 1, 1995

TOTAL OBSERVATION TIME: 40 minutes

OBSERVER: graduate student

1:15 Circle Time - John raised his hand to tell the preschool teacher about the new month. John sat very close to Tim and put his arm around Tim for 1 -2 seconds.

1:27 Play Time - John played with Terry on the floor with large floor toy.

1:28 John went to the sand table and explored the wheat in the sand box with his fingers. This appeared to be parallel play as there was little interaction with other kids at the sand box, although John was right beside the children. He had a brief squabble with one child at the sand table.

1:32 John moved to the computer and was by himself for a short time. The new student joined him, but the computer was not working. John told the teacher associate and then told the preschool teacher about the computer.

1:35 John joined the preschool teacher and some other children at the play dough table. This observer helped him make letters to spell his name. He could make some of the letters on his own - he needed to copy a model for two letters in his name.

1:50 John ran over to the computer where Tim was already playing. John pushed some buttons; Tim got mad; there was some pushing and shoving. The preschool teacher tried to get them to solve the problem, but he ended up shutting the computer off because John would not take turns.

1:54 John went to the listening centre by himself.

OBSERVATION 8

DATE: November 2, 1995

TOTAL OBSERVATION TIME: 60 minutes

OBSERVER: teacher associate

12:50 Free play time - John joined Tim at the computer and pressed some buttons for him. The observer asked if John wanted to sit down and take turns with Tim. John did not want to do this. He went to the listening centre, rewound a tape and listened to music.

12:58 Terry joined John at the listening centre. John asked Terry, "Do you know what this thing is?", referring to the volume control button. Terry did not reply. John said, "It's a 5 and a quarter." Terry smiled at John. Then Terry said, "More." John replied, "That's as loud as it can go." John nodded his head and upper torso in time to the music. Susan joined the group at the listening centre; she talked and laughed with Terry. John played with a button on the tape recorder. He watched the tape going around in circles, and continued rocking in time to the music. John said to Susan, "Don't push the buttons." Susan picked up a cassette case; John returned it to its place. Susan left the listening centre a few seconds later. John looked over at the craft table, but did not leave the listening centre. John continued to watch the tape turn and tapped his hand on the table for a few seconds. John pushed the pause button, then continued the tape. He looked briefly at the art table. Terry looked at John and smiled. John

made no response. He continued to rock in time to the music and look at the tape recorder. John pushed the eject button. The preschool teacher came over to listening centre. He explained to John that there was two minutes left to play. John had good eye contact with the preschool teacher during this exchange. The preschool teacher left. Terry went to play with the cars. John put the tape on the other side and continued to rock head and torso in time to the music. John alternated between watching two boys play with the cars on the floor and looking at the tape recorder.

1:17 The preschool teacher told the children to clean up the toys. The preschool teacher helped John put the cassette away. John took off the headphones, and sat beside Harry on the circle on the floor. John rocked his body in time to one song. He looked at the preschool teacher most of the time. John answered a correctly question about the weather. The preschool teacher asked John to shake Harry's hand during one song. John refused. John giggled when Harry scratched his back during the song. John participated fully in the "Jack-in-the-box" rhyme.

OBSERVATION 9

DATE: November 8, 1995

TOTAL OBSERVATION TIME: 1 hour - 5 minutes

OBSERVER: graduate student

2:25 John played with a wooden puzzle by himself.

2:26 John had a minor altercation with Tim. Then he followed Tim around the room for about one minute. John then played with some toys in the story corner.

2:30 John lined up promptly for gym class. He was able to follow the preschool teacher's directions regarding boys' turn and girls' turn. John also followed the preschool teacher's directions for free time activities. John fought with a little girl

over a toy. The parent volunteer removed the toy. John then played on other gym equipment.

2:45 The class watched a short movie. John sat quietly and watched. He made a few comments to the preschool teacher about the video machine.

3:00 The class went outside to play. John played on the tire swing with three other children and the preschool teacher.

3:25 During Show and Tell John watched quietly.

3:30 Home Time

OBSERVATION 10

DATE: November 9, 1995

TOTAL OBSERVATION TIME: 30 minutes

OBSERVER: teacher associate

1:00 John and Tim took turns while playing at the computer. The observer helped John to practice pushing two buttons then pass the keyboard to Tim. The observer backed away. John said to Tim, "That's one [turn]." The two boys took several turns back and forth until John changed games. John set up the new game and said to Tim, "Your turn."

1:15 John responded immediately to the call for Circle Time. He quickly sat on the circle on the floor. The preschool teacher explained to the class about turn-taking when talking and also encouraged everyone to sing the songs. The preschool teacher stopped the singing to remind John to sing. The preschool teacher used sign language as a visual reminder for John. John participated about half the time.

OBSERVATION 11

DATE: November 15, 1995

TOTAL OBSERVATION TIME: 55 minutes

OBSERVER: graduate student

1:05 During Circle Time John listened intently. He raised his hand, waited for the preschool teacher to call his name, then asked a good question about the schedule.

1:15 John went to listening centre. He was by himself.

1:25 John played on the computer with another student. Some turn taking took place, although John tried to dominate the computer.

1:30 The other student left the computer table and then John played by himself.

1:32 The other student returned to the computer table for one minute.

1:34 John went to a table where Andy was playing with a toy that made different noises when various buttons were pushed. John and three other students played with this toy for a short time together. Then the others left and John continued to play with this toy for twenty minutes by himself. He kept pressing one button constantly. He was told several times not to continuously press the button, but he would do it anyway.

1:55 Clean up time. John wandered around the room until the preschool teacher called the children to Circle Time.

OBSERVATION 12

DATE: November 17, 1995

TOTAL OBSERVATION TIME: 40 minutes

OBSERVER: graduate student

NOTE - THIS OBSERVATION TOOK PLACE DURING JOHN'S MUSIC CLASS AT A LOCAL COMMUNITY CENTRE

John sat down promptly and remained seated obediently during the whole music class. Little actual participation in the songs or actions was noticed, however.

One song required the children to identify a specific colour they were wearing and then sing a short verse about that colour. The other students were to stand if they were also wearing the colour that the selected child had picked. John was wearing the colours *white, grey*, and *blue*. He needed help finding them on himself and to stand up. He found the colour *blue* on his own and stood up appropriately. John sang the required verse by himself when it was his turn, however, he sang "Who is wearing *colours*?" rather than "Who is wearing (a specific colour)?"

The music teacher instructed, "Everyone sitting on a chair will sing.", and, "Everyone sitting on the circle will sing." However, John did not sing. John did tap his hands on his lap appropriately for one song. He also clapped his hands for another song, but not in the correct rhythm.

John was given a tambourine to play as a drum. He tried, but he had a difficult time holding the instrument and playing it at the same time. Also, he could not beat it at the right speed. He went too fast. After some practice, however, John ended up playing the drum twice, correctly.

John was given sticks to play. The first time he tried them, he went too fast. Eventually John got the rhythm of the song, after some practice.

John seemed to follow the other children's movements, rather than the teacher's oral instructions. For example, the teacher told the children to go and sit on the circle on the floor. John remained on his chair and did not move to the circle until he saw the other children sitting on the circle.

John attempted to sing the songs during the circle time. He voiced one or two words occasionally. He moved his body in time to the music from time to time.

OBSERVATION 13

DATE: November 20, 1995

TOTAL OBSERVATION TIME: 30 minutes

OBSERVER: graduate student

NOTE - THIS OBSERVATION TOOK PLACE DURING JOHN'S SWIMMING CLASS AT A LOCAL INDOOR SWIMMING POOL

John seemed to enjoy himself in the pool. He co-operated with the teacher. John was often distracted by the other classes in the pool at the same time as his class. He would often turn his back on his class in order watch other classes. However, the instructor was always able to easily bring John's attention back to his class.

The class tried a new activity today. They went down a small slide in the shallow water. John watched some of the kids do this, then he willingly tried it for himself. He would only go down the slide if the instructor would hold his hand. (Several other students required the same assistance.) John took all three of his allotted turns and seemed to have fun going down the slide.

OBSERVATION 14

DATE: November 22, 1995

TOTAL OBSERVATION TIME: 50 minutes

OBSERVER: graduate student

1:00 John was at the listening centre.

1:05 John came immediately to Circle Time when called.

1:18 John returned to the listening centre.

1:23 John went with the student SLP for an instructional session. John wanted to press the buttons on the tape recorder constantly. He clapped his hands spontaneously to music. He could correctly identify animal sounds.

1:34 John returned to the listening centre. The teacher associate joined him for a short time. John stood up and sat down repeatedly, but he never left the table nor did the headphones ever come off his head. He counted the plug-ins on the tape recorder and then told the preschool teacher the amount.

OBSERVATION 15

DATE: November 29, 1995

TOTAL OBSERVATION TIME: 1 hour

OBSERVER: graduate student

1:00 John was at the listening centre by himself.

1:05 John went to Circle Time immediately when called. John counted the students with the preschool teacher and the rest of the group. He listened to a story. He did not participate in any singing.

1:25 The class walked to another classroom for a movie. John walked appropriately.

1:30 John watched videos quietly and seemed to enjoy them.

OBSERVATION 16

DATE: December 20, 1995

TOTAL OBSERVATION TIME: 1 hour

OBSERVER: graduate student

1:00 John began the afternoon at the listening centre, by himself.

1:05 John joined Circle Time when called. He counted the students with the preschool teacher and the rest of the class. John listened to a story. He did not sing or other-wise participate in any activities.

1:15 John showed the observer his new play schedule. John chose one activity from three offered to do during play time. He chose to play in the sandbox. John played with a truck in the sand, for a short time. He did not interact with any other students who were also playing at the sand box. After 5 - 6 minutes, John returned to the listening centre.

OBSERVATION 17

DATE: January 10, 1996

TOTAL OBSERVATION TIME: 1 hour

OBSERVER: graduate student

1:00 John was at the listening centre by himself.

1:20 John picked four activity cards to insert into his play schedule. Then, before he would begin a play activity, he insisted on sitting at the listening centre first. John was given two minutes to listen to the tape recorder. John then willingly checked his play schedule and went to the first station, which was the computer. He watched two other students play on the computer until it was his turn. He played on the computer with Bob. They took turns, but not on a regular basis. Neither boy seemed to mind this arrangement.

After a few minutes at the computer, John again checked his play schedule for the next activity, which was the house centre. He and I both went to the house centre and John played with me for a few minutes. The play was irregular and totally under my direction. John interacted briefly with one boy in the house centre, then played with the cash register by himself.

After a few minutes of solitary play in the house centre, John joined a small group playing doctor on the floor. He participated in the pretend play on his own, without prompts or cues from me.

John did not have time to complete the remaining two activities listed on the play schedule, because he continued in the play session on the floor until the preschool teacher called for clean-up time.

NOTE: I feel that today was a real turning point for John. He occupied his time with activities other than the listening centre and participated in pretend play with peers.

OBSERVATION 18

DATE: January 17, 1996

TOTAL OBSERVATION TIME: 60 minutes

OBSERVER: graduate student

1:00 John was engaged in parallel play with some musical instruments, at a table with some other children.

1:15 Circle Time

1:20 John worked with the teacher associate and a small group of students to make a batch of play dough. He played with the play dough and was able to follow some of the teacher associate's instructions. Some of the fine motor tasks were too complicated for John.

1:40 John wanted to play on the computer; he had a minor altercation with Tim. The preschool teacher intervened and John watched two others play on the computer for a short time.

1:45 John had a short discussion with the preschool teacher regarding the thermometer.

1:46 John and I chose items for the play schedule. John chose to play with the Lego blocks. However, at the block table, he discovered a fine motor activity (a threading toy), which he played with for the remainder of the time. This activity proved quite challenging for John, and he was quite pleased when he was able to successfully complete it.

OBSERVATION 19

DATE: January 24, 1996

TOTAL OBSERVATION TIME: 60 minutes

OBSERVER: graduate student

1:00 John sat at the listening centre by himself.

1:15 During Circle Time John did not participate in any group activities.

1:20 John had chosen the listening centre during the preschool teacher's planning time. He and Terry spent a few minutes at the listening centre.

1:25 The preschool teacher asked John and Terry to join some other children at the art table. John went willingly and participated in the craft. John demonstrated awkward movements while trying to hold a paintbrush correctly.

1:40 John and Terry went to the computer together. They did not take turns because Terry was unsure of what to do so he asked John to take all the turns.

1:50 John and Terry played with some musical instruments on the floor. They alternated between playing by themselves and playing a "fast/slow" game with the teacher associate.

NOTE: I decided not to use the individual play schedule because John moved willingly from one activity to another, and, he played with a peer on his own.

I phoned John's mom to tell her of this positive play experience. She said that nothing out of the ordinary had happened in the morning that might have contributed to the successful afternoon.

OBSERVATION 20

DATE: January 31, 1996

TOTAL OBSERVATION TIME: 30 minutes

OBSERVER: graduate student

1:00 John began his afternoon at the listening centre, by himself.

1:05 The preschool teacher invited John to play a game of X's and O's with another boy. John willingly left the listening centre and played the game.

1:11 John went to get a tissue for his runny nose. He got distracted by a poster on the wall. He looked at it for several seconds. Then he used two tissues and needed a reminder to place used tissue in garbage can.

1:15 During Circle Time John responded to the question "Whose name begins with the letter J?" He was also very interested in the temperature chart. He was able to tell that today was colder than yesterday and that two of the days were the same temperature.

OBSERVATION 21

DATE: February 1, 1996

TOTAL OBSERVATION TIME: 2 hours - 15 minutes

OBSERVER: teacher associate

NOTE - THIS OBSERVATION TOOK PLACE DURING A SPEECH AND LANGUAGE CLASS FOR SPECIAL NEEDS CHILDREN

John spontaneously greeted one boy with "Hello". He refused to greet another student, and refused to shake his hand, when asked to by the Speech and language pathologist (SLP). He sat on his hands and said "No thanks."

John knew the month and date. He wanted to tell the SLP the temperature when she was discussing the colour of the sky. She asked for a volunteer to give the day's temperature, and then John was able to give the temperature.

The class spent some time playing with hairdressing supplies. John was interested in the voltage numbers listed on the blow dryer (1200 or 2400). John wanted to switch the voltage back and forth, and questioned the SLP about why he was not allowed to switch the button. John appeared interested in the adult-centred role play about the hairdresser's shop. However, his attention wandered during the child-centred role playing activities.

OBSERVATION 22

DATE: February 7, 1996

TOTAL OBSERVATION TIME: 60 minutes

OBSERVER: graduate student

1:00 John began his afternoon by sitting at the computer with two other boys. He watched Tim play with a game on the screen. John asked once if he could play. Tim did not respond and John did not push it any further.

1:15 Circle Time

1:20 John joined the teacher associate and several students at the craft table. He worked on a stringing craft all by himself.

1:30 John went to the computer and played by himself. Jim joined him for a short time and watched John, but did not take any turns. Terry joined John next. The two boys interacted verbally but Terry did not take any turns at the computer. Sam was the next to approach John at the computer. John asked Sam if he wanted to play and Sam said yes. Sam then said, "You tell me what to do, ok, John." John then took a turn. Sam took a turn and then would not return mouse control to John. John did not seem to mind. He started to tickle Sam on the neck and back. Sam did not verbalise for John to stop, but he kept trying to shrug John's hands off. John did not stop until the teacher associate told him to stop.

1:45 John joined a group on the floor playing blocks. He played with an adult volunteer, stacking and counting the blocks. John squealed and laughed in enjoyment. Then he played by himself, for the rest of the observation period. John got upset when Terry wrecked his block creation. John told the teacher associate. She told John to look at Terry and say "Please don't wreck my blocks." John said this to Terry and Terry quit.

Note: Again, I did not use the play schedule, as John went from one activity to another on his own. However, he did not engage in joint play, only isolated or parallel play.

OBSERVATION 23

DATE: Februa ? 996

TOTAL OBSERVATION TIME: 2 hour - 15 minutes

OBSER ER: teacher associate

NOTE - THIS OBSERVATION TOOK PLACE DURING A SPEECH AND LANGUAGE CLASS FOR SPECIAL NEEDS CHILDREN

The SLP began by singing a song about shaking your neighbour's hand. John stared out the classroom door during this song, but he did put out his hand at the appropriate time in order to have his hand shaken by someone else.

A volunteer was instructed to bring the thermometer in from outside. John said to no one in particular, "And it might go warmer." No one responded to this statement, so John repeated it. The SLP began a group discussion about the temperature. John kept interrupting by saying, "I think...I think..." When his turn to speak came, John said, "The red line might go up to plus four." The SLP acknowledged John's comment and went on to ask another student to respond. John tried to interrupt again by saying "It's plus zero..." He was instructed to wait his turn.

The class began an activity with a baby doll. An adult instructor demonstrated how to bath a baby. John seemed quite interested in this process. He responded appropriately to the instructor's questions. He commented that she should not get shampoo in the baby's eyes, "Cause that stings a bit." John expressed interest in applying some baby powder to the doll, which he did.

The SLP then repeated the role play with the doll. Again, John appeared interested and asked to help with various jobs several times. John ended the session by acting somewhat silly; he wanted to put the doll in the bathtub fully clothed.

OBSERVATION 24

DATE: February 13, 1996

TOTAL OBSERVATION TIME: 2 hour - 15 minutes

OBSERVER: teacher associate

NOTE - THIS OBSERVATION TOOK PLACE DURING A SPEECH AND LANGUAGE CLASS FOR SPECIAL NEEDS CHILDREN

The class began with a discussion about Valentine's Day. John said, "And there's one more thing. We won't be here on Valentine's Day, so we'll have to put an X on the calendar."

The class was taught a new Valentine's song. The instructors sang it to the class the first time. John sang almost all of it the second time, and sang all the song the third time.

The class was also taught two new Valentine's games. John appeared to enjoy the games and participated in them eagerly.

While the class was making Valentine cards for each other, John commented, "Your heart inside your body is the same size as those hearts." John was pointing to the paper hearts on the craft table as he made this comment.

OBSERVATION 25

DATE: February 14, 1996

TOTAL OBSERVATION TIME: 60 minutes

OBSERVER: graduate student

1:00 John put my Valentine cards in the students' Valentine bags for me. He was able to read and match all the names.

1:15 Another preschool class came to play. John listened to a tape at the listening centre.

1:25 A second preschool class arrived in the classroom. All three preschool classes had a sing-song session. John joined in with some actions (e.g.clapping his hands and standing/sitting when required), but he did not join in on any singing.

1:45 The two preschool classes left. The preschool teacher explained a craft to all the students. John then joined several students at the craft table and worked on the activity.

NOTE: John was very demonstrative with Terry today. John kept giving him "bear hugs", slapping him on the back, (in a friendly manner) and resting his head on Terry's shoulder. John had to be told several times by the preschool teacher to stop touching Terry. Terry occasionally indicated, through body signals, (e.g. shrugging off John's hand or not responding to the hugging) that he wanted to John to stop. John did not respond to these subtle signals by Terry.

OBSERVATION 26

DATE: February 22, 1996

TOTAL OBSERVATION TIME: 2 hour - 15 minutes

OBSERVER: teacher associate

NOTE - THIS OBSERVATION WAS TOOK PLACE DURING A SPEECH AND LANGUAGE CLASS FOR SPECIAL NEEDS CHILDREN

One of the instructors showed the class pictures of various vehicles. John had good eye contact with the instructor throughout this activity. He correctly answered a question directed to the whole group. John mouthed his hands briefly during this activity.

The instructor introduced a game to the group. John seemed interested at first, and followed each person's turn by looking at them. General restlessness set in, however, as the game progressed. John bit his lip, moved his legs back and forth, and moved around in his chair.

The SLP played a game with John and a few other children in a group situation. John was not happy with her choice of games, as he wanted to play the game listed on the wall chart. When asked what he did with a picture that was needed for the game, John replied, "I don't want to answer. I don't remember." The SLP continued with the game, in which she showed the children a picture of a vehicle which they were to name. John was more interested in the back of the picture cards. The SLP showed John a picture of a truck. John called it a car. John replied with the word "race mobile" when shown a picture of a Volkswagen car. The SLP explained what a Volkswagen was and John commented, "You know a bug is like an old car - it starts at 25 [years old]."

NOTE: John presented with several instances of perseveration today. He was sometimes willing to discontinue the perseveration when the SLP did not respond to his off-topic comments. One or two times John repeated a comment or question so many times that the SLP was forced to respond. Both times this happened a short response from the pathologist was enough to satisfy John.

OBSERVATION 27

DATE: March 5, 1996

TOTAL OBSERVATION TIME: 2 hours - 15 minutes

OBSERVER: teacher associate

NOTE - THIS OBSERVATION TOOK PLACE DURING A SPEECH AND LANGUAGE CLASS FOR SPECIAL NEEDS CHILDREN

John correctly identified the new month of March for the calendar. John said, "Today's St. Patrick's Day." He repeated this statement when he got no response from the SLP. She asked if he thought it was St. Patrick's Day because the number on the calendar was green and John replied in the affirmative.

The SLP introduced the new schedule for the month. John was very interested in the schedule. He was the first person to volunteer to explain the schedule, step-by-step. During this explanation, John's hands were clenched tightly or were pulling on his groin.

One of the instructors began a discussion about pets. John was chewing and pulling on his shoe lace during this discussion, but he seemed to be paying attention because he responded appropriately to questions. One part of the discussion dealt with the creation of a role play involving a pet store. John was quite concerned with the store hours. The instructor mentioned that the pet store would open at 9:00. John had to know when it would close as well.

After all the role plays were completed, the class moved into the video room. John immediately walked up to the video machine and was about to push the video-tape into the machine before he was stopped. John then asked the SLP if he could push in the tape. She replied that he could but not just yet. When the SLP said that John could push in the tape, and press the power button on, he was very excited. He did sit down in his spot when asked after this.

OBSERVATION 28

DATE: March 6, 1996

TOTAL OBSERVATION TIME: 70 minutes

OBSERVER: graduate student

12:50 John began his afternoon by playing on the computer, first by himself, then with another boy. The two boys took turns and played together.

1:00 John played a game with the preschool teacher. The preschool teacher hid objects in the sand table and John had to find them by using a map that the preschool teacher had drawn. John had no trouble doing this and really seemed to enjoy this game. (I did not see who initiated the game.)

1:10 Circle Time - John cut the hair on Mr. Grasshead. John sang the "Eyes and Nose" song and tried to do the accompanying actions. He seemed to really enjoy this song. He also learned a new action song, in which he attempted to participate. John and the whole group smelled various scents that the preschool teacher had brought today. John willingly participated, however, he could not inhale through his nose in order to smell the scents. Every time he was offered a scent, he would exhale through his nostrils, thereby sending particles of spices, etc. up into the air. John then watched the demonstration of today's craft.

1:30 John played by himself with a toy vacuum cleaner. Everyone else was either out of the room, or at the craft table, so there was no one for John to play

with. He played with the vacuum while he waited for a chair to open up at the craft table.

1:40 John worked on a craft at the craft table, with some help. The craft required him to paint in an oval shape completely with paint. He had trouble manipulating the paintbrush and needed a small amount of help to complete the task.

1:50 While John was washing his hands, he got soap in his right eye. He came to me for assistance. I helped him wash his eye out and he told the preschool teacher what had happened. He soon recovered.

1:55 John played doctor with the preschool teacher, then with another student.

OBSERVATION 29

DATE: March 12, 1996

TOTAL OBSERVATION TIME: 2 hours - 15 minutes

OBSERVER: teacher associate

NOTE - THIS OBSERVATION TOOK PLACE DURING A SPEECH AND LANGUAGE CLASS FOR SPECIAL NEEDS CHILDREN

John began the class by repeating twice, "That was the same calendar as the December calendar." The SLP ignored John and he stopped repeating this comment.

The SLP asked John who he would like to say good morning to, and John replied, after a three second pause, "No one." Then the SLP began the day's discussion with, "Today we will talk about..." John interrupted with, "Easter!" He repeated it when he got no response. The SLP then revealed that the day's discussion would be about animals. John inserted, "And Easter." The SLP explained to John that they had already talked about Easter and today would be discussing animals.

The class went into the computer lab and looked at the CD-ROM about animals. John appeared quite excited about this program. He stood for the whole demonstration. John perseverated on the method for turning the story book pages on the computer program, even several minutes after the SLP had gone on and had ignored the off-topic comments. John was also concerned with the process of pushing buttons and changing screens. He was able to quickly memorise the symbols and thereby knew which animals had the option of sound and which did not. At the end of the computer session, while the rest of the class was getting ready to leave the computer room, John went over to the computer and was about to press some buttons when the SLP stopped him. She explained to John that the computer was set up for the next group and he had to join the rest of his group. John immediately joined his class.

The class then played with some toy animals. John was resistant to the idea of sharing the toys with his classmates. The SLP encouraged him to share a toy dog with a classmate; John said "No!" repeatedly. He then asked, in an appropriate manner, if he could play with a remote-control toy dog. He took a turn with the toy, then would not give it to another child for a turn. The SLP had to take the toy away from John.

OBSERVATION 30

DATE: March 13, 1996

TOTAL OBSERVATION TIME: 50 minutes

OBSERVER: graduate student

1:10 During Circle Time John did not sing the familiar song, "If You're Happy and You Know It...", or do any actions, except to perseverate on scratching a neighbour's back. He played with his name tag during most of Circle Time today.

John participated in videotaping a demonstration on good and bad touches. He paid attention when others participated. John could demonstrate how to tell someone to stop hugging.

John could name the correct month. He would not close his eyes for a thinking activity. He watched the preschool teacher demonstrate the craft of the day.

1:30 John got the doctor's bag out for free play. He and Jim engaged in some parallel play. They also engaged in a few minutes of interactive play, which John initiated. John initiated doctor play with me. He also played with Jim when I directed him to do so.

1:40 The preschool teacher tried to interact with John but John tried to continue the doctor play with the preschool teacher. John finally did play Lego with the preschool teacher for five minutes.

1:45 John tried to continue the doctor play with me, even though I was doing something else with another child, and we were in a different part of the classroom. I asked John to stop, and he did very quickly. He went back into the house corner for approximately two minutes.

1:47 John did the craft with the preschool teacher.

OBSERVATION 31

DATE: March 20, 1996

TOTAL OBSERVATION TIME: 45 minutes

OBSERVER: graduate student

1:15 During Circle Time John listened to poems read by the preschool teacher. He did not laugh at the funny sections, like the other students did. John pushed a

classmate away three times when he got too close to him. John participated in a sensory stimulation activity; he described a piece of wood and classified how it felt, smelt and looked. John wouldn't sing any songs. He volunteered the weather information. He closed his eyes for a thinking activity using his fingers to hold his eyes closed.

1:33 During Free Time John watched a boy play on computer.

1:34 John went to the listening centre. I told him that in two minutes he could pick something else to do and he agreed.

1:36 By his own initiation John joined Jim and me playing at the driving centre. The two boys took turns "driving" and being passengers.

1:49 John, on his own, joined a boy on the floor with the cars.

1:50 The boy left. John continued to play with the tracks and vehicles by himself.

1:55 The teacher associate and a student joined John on the floor. John interacted with the teacher associate, while the other boy engaged in parallel play.

OBSERVATION 32

DATE: March 21, 1996

TOTAL OBSERVATION TIME: 2 hours - 15 minutes

OBSERVER: teacher associate

NOTE - THIS OBSERVATION TOOK PLACE DURING A SPEECH AND LANGUAGE CLASS FOR SPECIAL NEEDS CHILDREN

John perseverated on the calendar and on putting his picture beside the fish. He did offer some on-topic comments, however, he also engaged in lengthy perseverations on off-topic comments.

The class was talking about seeds and planting. John studied the seed package. He picked out all the numbers on the package. The SLP had to ask John to stop talking and to follow the class discussion. Then John dominated the discussion by answering the majority of the questions asked by the SLP.

OBSERVATION 33

DATE: March 27, 1996

TOTAL OBSERVATION TIME: 50 minutes

OBSERVER: graduate student

1:10 John was with the teacher associate at the table; they were taking turns looking through a viewfinder.

1:15 During Circle Time John looked at the preschool teacher the whole of Circle Time. He did not sing. John watched the preschool teacher demonstrate the craft of the day, which was egg decorating. John said to the preschool teacher, "You have to be cautious." The preschool teacher asked John why he said that? John then explained how an egg might break if dropped.

1:25 John and his class moved into another preschool classroom within the building for a period of singing. John stared at the clock for the first few minutes. He did not sing. He attempted some actions to one song, but could not sustain the movements for the duration of the song. John refused to stand up for a certain song, even after a teacher assistant from another preschool class asked him to stand. John began hugging Harry and would not stop. Harry finally moved away from John. John moved to sit by me. He tried to sing the "BINGO" song, but did not attempt to clap when the song required such actions.

2:00 John and the other students returned to their own classrooms.

OBSERVATION 34

DATE: April 17, 1996

TOTAL OBSERVATION TIME: 1 hour - 10 minutes

OBSERVER: graduate student

12:50 John was playing with two other boys with a floor toy. John approached a volunteer when she arrived and said, "Hello. How are you?" John then played with the volunteer on the floor with the big toy. John and the volunteer carried on a conversation.

1:06 During Circle Time John watched attentively while the preschool teacher demonstrated the craft of the day. John felt a pussy willow branch that was passed around the group. He counted the amount of pussy willows on the branch, on his own, without any prompting. Then John kept shouting out the number of pussy willows on his branch, even though the preschool teacher did not respond to John. John talked to his neighbour about even and odd numbers and whose branch had the greater amount of pussy willows. John added his pussy willows to the amount his neighbour had, very quickly, with no hesitation. He did not appear to count or to otherwise use manipulatives to figure out the equation. ("Eleven plus ten equals twenty-one." said John.) John then made the transition into a song very easily, but did not sing. He did, however, do some of the actions for the song. John raised his hand in response to the preschool teacher's question about the weather. John told the class it was a cold day, when in fact it was a warm day. He argued with a neighbour about this issue for several minutes.

1:18 John participated in the craft. He worked on his own. The craft required him to make small playdough balls and place them on a picture. He did well by

himself. While he was working, he commented that he had..."The same number [of playdough balls] as my pussy willows, eleven".

1:25 John approached the preschool teacher and another adult who were talking together. John questioned the unfamiliar adult about what she was doing in the classroom.

1:30 John began a discussion with me regarding weight. He told me that he weighed 50 pounds. He asked me how much my youngest daughter weighed. I told him she weighed 25 pounds. John immediately replied, "She's half as much as me." Then John asked me how much I weighed and told me how much his parents weighed. He said his father weighed 180 pounds and then he said, "That's three times as much as 60 pounds."

1:35 John briefly helped another student to sweep the floor by the sandbox. John then accidentally squashed an ant with his hand; he proceeded to the bathroom to wash his hands. After he finished in the bathroom, John took me to the growth chart taped to the classroom wall and showed me his weight and height marked on the chart. John, myself, and several other students took turns measuring our heights.

1:45 John asked me to play with him. We joined a boy playing with several large floor toys. John continued to play with the toys even after the other boy had left.

1:55 John wanted to play with a ball that another boy had. He asked the boy for it. The other boy would not give it up. John appealed to me for help. I encouraged the boys to come up with their own solution. John continued to look helplessly at me. Another boy came along and casually pointed out that there were more balls in the cupboard. John immediately ran to the cupboard and got his own ball.

OBSERVATION 35

DATE: May 8, 1996

TOTAL OBSERVATION TIME: 60 minutes

OBSERVER: graduate student

1:00 John was at the listening centre, by himself.

1:10 During Circle Time John went to talk to his neighbour - he stuck his face right in his neighbours face to talk. In fact, they were nose-to-nose. The other boy did not seem to mind this at first, then backed away from John after about two minutes.

1:20 John went to the listening centre when Free Time was announced. After one minute at the listening centre, I encouraged John to play with something else. John was resistant to this suggestion. I told John that he had to play with something else for five minutes, then he could come back to the listening centre. He agreed to this. John chose to play at the sandbox with some other boys. He played happily for more than five minutes. He even suggested to one of the boys that they could share a particular toy when both of them wanted it at the same time.

1:30 The preschool teacher asked John to join some children at the craft table. John was reluctant to move from the sandbox. The preschool teacher told John that he would set his watch alarm to beep in five minutes. This was to be a signal for John to move to the craft table. John agreed to this.

1:40 The preschool teacher's watch alarm beeped. John immediately moved to the craft table and completed the craft with the preschool teacher. Then John spent two to three minutes examining the preschool teacher's watch.

1:50 John rejoined the group playing at the sandbox. He did this with no prompts from anyone. John, twice, deliberately wrecked a sand castle built by some other children. He was reprimanded by the teacher associate. John

continued to play at the sandbox, with interacting positively with the other children, for another ten minutes.

Appendix I

Team Meetings

The minutes of the team meetings are reported in this appendix. The team that met regularly to plan and discuss John's progress in the social skills area consisted of personnel from the centre where John was receiving early intervention services. The team members included: the speech and language pathologist; the psychologist; the preschool teacher; the teacher associate; the early intervention co-ordinator; the school board consultant for the mentally retarded; John's mother; and myself, the graduate student.

The team meetings focused on John's social skill development. However, from time to time, discussions digressed into other related areas. For the purposes of this handbook, only issues relevant to John's social skill development will be presented.

TEAM MEETING NUMBER ONE

DATE: OCTOBER 30, 1995

PRESENT: speech and language pathologist, preschool teacher, teacher associate, John's mother, graduate student

1. John's mother opened the first team meeting by commenting on her perceptions of each individual team member's role. It was agreed that the graduate student would develop the initial part of the social skills program. The teacher associate would facilitate the program. The remaining team members would act as consultants to the graduate student and the teacher associate.

2. The team briefly discussed the comprehensive language inventory as presented in the 1995 book, Teaching Children with Autism: Strategies to Enhance Communication and Socialisation, by Kathleen Quill. It was decided that the graduate student and the speech and language pathologist would meet separately to discuss the possible use of this inventory.

3. The team discussed the use of individual schedules and visual aides for John. John's mother and the speech and language pathologist would like to implement the use of a personal schedule by John, during the preschool hours. The personal schedule should include such statements as: "I will play with the blocks today."; and, "I will clap during Circle Time today." The graduate student volunteered to draw up a tentative personal schedule for John, in time for the next team meeting. The individual statement items can be distributed and revised at that time. The graduate student will also develop a tentative social story to present at the next meeting.

4. The teacher associate is allotted 4 hours to work with John in the preschool. It was agreed that she should develop her own schedule, to best

suit her schedule and the preschool schedule. She should consult with the preschool teacher before finalising the schedule.

5. The graduate student presented a working plan in the form of a lesson plan. This lesson plan will be used by the teacher associate to guide the intervention strategies used with John. See Appendix J for a copy of the lesson plan.

TEAM MEETING NUMBER TWO

DATE: NOVEMBER 6, 1995

PRESENT: speech and language pathologist, early intervention worker, teacher associate, John's mother, graduate student

1. The team discussed the idea of collecting samples of John's language, especially when interacting with others. It was decided that the graduate student and the teacher associate will collect language samples during the preschool class; the speech therapist will collect samples during her Language Intervention Program for Preschoolers (LIPP); John's mother will collect samples during John's music class; and, the early intervention worker will collect samples in the home setting. This collection will form the first step in the interaction analysis as outlined in Quill, K. (1995). Teaching Children with Autism: Strategies to Enhance Communication and Socialisation. New York: Delmar Publishers, Inc.

2. The next item dealt with was the development of the personal schedule for John. It was decided that the early intervention worker and John's mother will develop a personal schedule for John to use at home. The speech and language pathologist will a schedule to use during LIPP. The graduate student and the teacher associate will implement a schedule to be used by John during preschool hours. The team brainstormed various ways of presenting the personal schedule to John in the preschool setting. It was decided that a pocket chart would be the best method for presenting schedule items to John; it would offer some choice for John by inserting different cards on different days. The early intervention worker will ask a student intern to develop a short schedule for John, outlining the steps for taking off his coat at the beginning of preschool and putting on his coat at home time. This schedule should be placed in John's locker.

3. The graduate student presented a brief outline of two social stories for turn-taking at the computer. It was decided that the stories should be longer and more narrative in form. The speech and language pathologist will videotape John during preschool hours in order to obtain more descriptors to use in the social stories.

4. The team discussed asking a grade one student from the school adjoining the centre to be a play partner for John. The teacher associate will discuss this possibility with the preschool teacher. The preschool teacher and the teacher associate will approach the principal of the school and discuss this possibility with him as well.

TEAM MEETING NUMBER THREE

DATE: NOVEMBER 15, 1995

PRESENT: preschool teacher, early intervention worker, teacher associate, John's mother, graduate student

1. The team discussed the issue of Circle Time - the time during preschool class when the class gathers around the preschool teacher to sing songs, listen to stories, to share experiences and to review the day's schedule. The team decided that John does not have any particular trouble with participating in Circle Time, except for taking part in the songs. John normally does not sing or carry out any actions to songs. The team thought that eventually a social story could be developed to address this issue, however, no social story will be written at this time. The team does not want to overwhelm John with too many new activities at once.
2. The graduate student presented an outline for a social story for turn-taking at the computer. The team suggested some minor revisions. The team decided to keep the social story simple to begin with; it can be revised at a later date if it was felt that more complex items needed to be added to the social story. The teacher associate will type and assemble the story. She will begin reading the social story with John on November 20/95. A copy of the social story can be found in Appendix F.
3. The preschool teacher discussed with the principal of the adjoining school, the possibility of pairing John up with a regular student. The principal did not have a problem with this. The preschool teacher will talk to a regular room teacher in the hopes of finding a suitable student to play with John.
4. The teacher associate developed a list of statements for the personal schedule for John to use during preschool hours. The teacher associate will type the statements on small cards and assemble a pocket chart to display

them. The teacher associate will begin using the schedule with John on November 20/95. The actual statements used in the personal schedule can be found in Appendix E.

5. John's mother commented on something that she had noticed during one of John's music classes. She said that John would sing if his teacher said "Everyone sitting in a chair will sing this next song." The graduate student will talk to the preschool teacher about trying this with John in the preschool class. The graduate student will suggest that the preschool teacher say something like, "Everyone sitting on the carpet will sing this next song."

TEAM MEETING NUMBER FOUR

DATE: NOVEMBER 27, 1995

PRESENT: speech and language pathologist, preschool teacher, teacher associate, John's mother, graduate student, director of centre

1. The director of the centre discussed the following proposal: to hire Tracie Lindblad, the speech and language pathologist from the Geneva Centre in Toronto, for a three-hour consult. We could sent her written material and video-tapes of John and ask for her reaction to our current programming. The team decided that this would be beneficial. Each team member is to develop a package consisting of our role description, our program summary and questions. Each package is to be handed in to the speech and language pathologist by December 11, 1995.

2. The teacher associate discussed the integrated play group model which she and the graduate student have been working on with John in the preschool class. Briefly, the integrated play group model provides some structure and guidance for both the autistic student and the teacher associate. The structure encourages the autistic child to interact in appropriate ways with peers. The play group with peers in the classroom was not working - the other four-year-olds were not persistent enough in their interactions with John. Therefore, the preschool teacher and the teacher associate have begun looking at using an older student to play with Thomas for a short period every day. They will attempt to begin this new interaction on November 28/95. The times set up so far are Tuesdays and Thursdays from 2:20 to 2:35. The team discussed video-taping some sessions. The preschool teacher expressed interest in showing his preschool class successful play interactions.

3. John's mother discussed the individual schedule that she and the early intervention co-ordinator have developed for use at home. John's mother

commented that it was not going well and needed some revisions. Also, John obsesses on the blue sticky adhesive used to hold the schedule to the wall. John's mother is looking at alternate ways to present the personal schedule to John.

4. John's mother informed the team that John recently made up two games on his own. They were rudimentary, primitive imaginative games, but this was the first evidence of this.

5. The social story is not photocopied yet. The teacher associate will attempt to complete the preparations as soon as possible.

6. The teacher associate will begin using the individual schedule that was developed for John to use in the preschool on November 28/95. The schedule contains nine pockets glued onto a yellow piece of bristol board.

7. The preschool teacher reported that he has not noticed any increase in John's participation in songs since he began using the technique of saying things such as "Everyone sitting on the carpet will sing.", and so forth.

TEAM MEETING NUMBER FIVE

DATE: DECEMBER 12, 1995

PRESENT: graduate student, teacher associate

1. The teacher associate reported that the integrated play group, with John and the grade two student is going well. However, she feels that 15 minutes is not enough time to teach effective social skills. The graduate student suggested that they bring this concern to the next large team meeting.

2. The teacher associate commented that John does not seem to need the individual schedule for the whole preschool class. John is able to follow most of the preschool teacher's instructions pretty well on his own. Also, the teacher associate noticed that John tends to complete a scheduled activity very quickly just in order to get it done, and then he moves onto another activity. John does not appear to be enjoying the activities, rather, he is enjoying the act of completing the schedule. However, the teacher associate did comment that the schedule seemed to be helpful for John in order for him to organise his free time. The teacher associate and the graduate student decided to use the individual schedule only during free time in the preschool, and not for the whole class time.

3. The teacher associate has been reading the social story for taking turns at the computer with John. The teacher associate reported that there has not been much improvement in this area. This was attributed to the fact that John has not been spending much time on the computer but rather, he has been going to the listening centre during his free time.

TEAM MEETING NUMBER SIX

DATE: DECEMBER 19, 1995

PRESENT: preschool teacher, speech and language pathologist, teacher associate, John's mother, school board special needs consultant, graduate student

1. The team discussed the package that was put together for Tracie Lindblad, speech and language pathologist, Geneva Centre, Toronto. The speech and language pathologist will make a copy of the package for each team member to look at before she mails it to Tracie.
2. The team discussed the integrated play group that the teacher associate is doing with John and a regular grade two student. The teacher associate commented that the 15-minute time slot is too short to accomplish anything. The team discussed the option of asking the grade two student to have lunch with John once a week, thereby providing some extra play time for John and the older student. The preschool teacher, the teacher associate, and John's mother will look into making the appropriate arrangements.
3. The school board consultant reported that she was not able to comment on whether the school board will continue funding the teacher associate position after Christmas. She will attempt to inform the team about the funding issue as soon as possible.
4. The team has received $400.00 from Council for Exceptional Children (CEC) to help with our social skills program for John. The team will decide on the best way to spend the money at another meeting.

TEAM MEETING NUMBER SEVEN

DATE: JANUARY 8, 1996

PRESENT: teacher associate, graduate student

1. The teacher associate informed the graduate student that funding for the program has been extended until the end of May/96.
2. The teacher associate will continue to use the individual schedule during free time periods only. It was decided to present five or six free time choices to John. John is to pick four free time activities from these options. John will be allowed to put the activity card in the "finished" pocket on the schedule board after completing each free time activity. Both the teacher associate and the graduate student will use this method of presentation when working with John in the preschool.
3. The teacher associate will spend some time observing John and making observational notes. She will do this about once a week, for comparison and evaluation purposes.

TEAM MEETING NUMBER EIGHT

DATE: JANUARY 16, 1996

PRESENT: speech and language pathologist, John's mother, teacher associate, early intervention co-ordinator, psychologist, graduate student

1. The graduate student related the positive experiences John is having with the individual play schedule. The individual schedule seems to be working, in that it is forcing John to play at activities other than the listening centre.
2. The graduate student distributed a rough draft of a new social story for asking a friend to play. It was then decided to halt further writing of social stories until the team received feedback from the consultant.
3. John's mother reported that the speech and language consultant, (Tracie Lindblad), had telephoned her with a brief, informal report of our data so far. She has begun to put a package together for us, but ran out of paid time. John's mother told her to keep going and that further funding would be forthcoming. The team decided to meet again as soon as the package from Tracie arrived.
4. The teacher associate reported that the grade two student who is involved with John in the integrated play group, will now come to the preschool classroom, Monday's, from 12:50 - 1:15, to play with John. The team also discussed the possibility of having one or two other students join John and the student during another noon hour - to eat lunch in the cafeteria, then to play board games in the library. The teacher associate will begin looking into this.

TEAM MEETING NUMBER NINE

DATE: JANUARY 30, 1996

PRESENT: John's mother, teacher associate, psychologist, preschool teacher, graduate student

1. The package from Tracie Lindblad was sent by courier service this morning to John's mother. It should arrive shortly. John's mother will call each team member when it arrives.

2. The teacher associate expressed concern over some new behaviours that John is now displaying, such as being "silly" and not stopping these "silly" behaviours upon request; or hugging adults/children repeatedly without stopping when asked. John appears to get overstimulated and cannot stop the behaviours. The teacher associate wondered if these behaviours are a result of John's increased socialisation skills; he is now willing to socialise with peers more often, but remains unsure of appropriate behaviours. Apparently he has been "acting up" during LIPP class and John's mother reported that it frequently happens at home as well. The preschool teacher reported that John has not displayed these types of behaviours at preschool, except for one incident in the recent past. The psychologist suggested that John try Sensory Integration Therapy as a way of expressing his emotions more appropriately and as a way of releasing excess energy. The psychologist will look into making the appropriate arrangements for Sensory Integration Therapy.

3. The team discussed the possibility of video-taping John and using it as a social story. The team decided to think about this some more before (if) implementing.

4. The graduate student brought up some transition issues to think about as John moves from preschool to Kindergarten. She encouraged John's mother and preschool teacher to think about the following:

-are assessments current?

-the preschool teacher should be the main liaison between preschool and the receiving school

-John should visit the Kindergarten room several times in order to become familiar with the teacher, the room, the routine, etc.

TEAM MEETING NUMBER TEN

DATE: MARCH 5, 1996

PRESENT: John's mother, preschool teacher, teacher associate, psychologist, early intervention co-ordinator, speech and language pathologist, director of centre, school board special needs consultant, graduate student

1. John's mother reviewed the package and suggestions from Tracie Lindblad, the speech and language pathologist from Ontario. The package was summarised as follows:

environment

- a quiet, structured and predictable environment is better for John because he stays calmer in such an environment

- John would benefit from direct modelling of expected behaviours

- John tolerates interactive play, but does not initiate it

- John does not understand all verbal explanations, as demonstrated by his constant questioning and disruptive behaviours

- John is anxious, as demonstrated by his constant mouthing of his hands - the team should give this area priority by reducing his anxiety and by making his environment very predictable and using pictographs and simple language for scripts and routines

social stories

- let John read the story first, then re-enact in real world

- John needs a social story for greeting peers

- social stories should be rehearsed through role-playing

- keep all social stories in a binder for John to review periodically

scripting

- scripts are words in quotation marks - dialogue

- scripting should be included in social stories

- use scripts with John on a one-to-one basis to introduce new skills, so new contexts are not so frightening for him

perseveration and interrupting

- the team was encouraged to ignore irrelevant question and to redirect John to more appropriate activities

- John asks irrelevant questions because he does not understand verbal directions and needs picture cues to help redirect behaviour

The complete package from the consultant can be found in Appendix K.

2. John's mother indicated that several small working groups have been formed to take the consultant's ideas and make them usable.

3. The teacher associate showed some video-tape that showed progress being made in John's interactive play and social skills. The tape showed that John is beginning to relate to peers. For example, he laughed at the word play of another student and he demonstrated appropriate behaviour when given a time limit to stop one activity and then moved on to a new activity. The teacher associate also showed us some pictographs being developed that will be used to encourage John to sing during Circle Time at preschool. Some other pictographs are being developed to use in a vertical chart for a daily schedule. The teacher associate concluded her report by relating that as John is becoming more socially aware, he is also becoming more aggressive towards his peers. No decisions were made at this time regarding this problem.

4. John's mother indicated that the consultant had suggested the use of a hands/no hands card to use as a visual cue whenever John engaged in the mouthing of his hands. She indicated that through the use of the hands/no

hands card, John's mouthing behaviour has been greatly reduced. John was shown a pictograph of a hand in a mouth, when he was engaging in this behaviour, in a nonjudgemental manner - it was used as a reminder to stop. However, John's mother stated that now John has replaced this behaviour with a new one - that is, groping his groin.

5. The speech and language pathologist related some changes she has made to her Language in Preschool Program (LIPP). She is now using vertical charts with pictographs as a daily schedule.

6. The group discussed the pictographs and various ways to use them in the preschool classroom. The team decided that pictographs should be made for each play centre in the classroom. The pictographs should outline how to play at each centre and how to use the toys contained at the centres. The team felt that by using the pictograph scripts, and very little verbal explanation, John's power struggles that often result from his verbal arguments could be eliminated.

7. The early intervention co-ordinator related that the home program was focusing on improving John's behaviours, such as arguing and having temper tantrums. Also, she reported that John had a sensory motor integration assessment and some of the suggestions that came out of this assessment have been incorporated into his home routine.

TEAM MEETING NUMBER ELEVEN

DATE: APRIL 2, 1996

PRESENT: psychologist, John's mother, speech and language pathologist, teacher associate, graduate student

1. The teacher associate reported that several visual aides are being used with John now. Schedules have been made, and are being used, that incorporate pictographs. The schedules are being used both at home and at preschool. The teacher associate indicated that future social stories being considered include rough play versus safe play, greeting peers, how to act appropriately at swimming lessons and how to participate during music class.
2. The speech and language pathologist analysed the communication samples that have been completed since the beginning of the school year. She reported that John is doing well with the various social cues and strategies that he has been taught over the past year. However, it appears that John only does well when prompted. The speech and language pathologist did not see any significant progress being made when the prompts were withdrawn.
3. The speech and language pathologist, the preschool teacher and John's mother reported that they have begun to video-tape a drama about rough play versus safe play. They are using the students from the preschool class. The preschool teacher plans on showing the completed video to John to teach John how to play more appropriately with his peers.

TEAM MEETING NUMBER TWELVE

DATE: MAY 7, 1996

PRESENT: psychologist, speech and language pathologist, preschool teacher, teacher associate, John's mother, early intervention co-ordinator, graduate student

1. John's mother reported on the progress of the video-taping project. John's mother, along with the teacher associate, have completed another dramatisation using the preschool class. This latest video shows appropriate social interactions, such as shaking hands and asking peers to play. The preschool teacher has used this video as a teaching aid in the classroom. It was suggested that John's mother show the completed video-tapes to John at home for extra reinforcement of the appropriate social skills. John's mother and the teacher associate plan to film one more dramatisation, this time using older students and depicting social situations in which being silly is not appropriate.

2. The teacher associate reported that she is beginning to develop more social stories to use with John. The teacher associate would like to develop another social story regarding the play group situation; that is, what to do when John's friends do not want to play what he has suggested.

3. The early intervention co-ordinator gave a brief report regarding the progress being made at home with John. She would like to involve John's father more in the social training program. The early intervention co-ordinator and the psychologist plan to meet with John's father to bring him up to date on the program and to give him a chance to participate in the programming. The early intervention co-ordinator reported that they are still using individual schedules and scripts with John at home. She has also started to work with John on relaxation techniques to use when he gets angry. The early

intervention co-ordinator expressed concern over the lack of free time activities for John at home. She reported that John needs something to do in order to replace his inappropriate behaviours, and some of these activities should be able to be done by John independently. The team brainstormed some solutions and came up with the following suggestions: enrol John in a gymnastics class, Taekwond-do, or other type of exercise class, install a mini-trampoline in the basement of the house, and participate in horseback riding.

Appendix J

Lesson Plan

October 23, 1995

OBJECTIVES:

1. John will expand his toy repertoire to include toys available in the preschool, other than playing with only at the computer.
2. John will learn some strategies for turn-taking on the computer and also in other situations that require turn-taking skills.
3. John will learn some strategies for initiating a conversation with peers.

PROCEDURES:

1. The teacher associate will encourage John to play with toys other than the computer. The teacher associate will invite other students to join with John in playing with toys available in the preschool such as blocks, cars and Duplo. The teacher associate will guide the play situations using the suggestions outlined in the section on integrated play groups found in the 1995 book, Teaching Children with Autism: Strategies to Enhance Communication and Socialization, by Kathleen Quill. (p. 206 - 214)
2. The teacher associate will help John learn turn-taking skills through the use of social stories.
3. The teacher associate will help John learn conversation initiation skills through the use of social stories.

4. The teacher associate will help John with organisational skills through the use of an individual schedule.

Appendix K

Consultant's Package

The following package was received by the team from Tracie Lindblad, speech and language pathologist, Geneva Centre, Ontario. The suggestions are in response to the package of information and questions that each team member sent her. The primary goal in hiring the consultant was to improve our methods and approaches for helping John to develop better socialisation skills.

Programming Suggestions

Preschool - John needs more visual cues. He needs his own schedule board so that he does not have to worry about all of the other activities except the ones he will have to do. Photographs are not a good idea for visual schedules as there is too much visual detail and the ideas are not easily generated to situations that do not look exactly like the photograph.

John may have difficulty with motor planning, which would explain why he has trouble singing and doing the actions at the same time.

Rules need to be established for the listening centre for John. He will self-stimulate during this activity and his anxiety will increase unless he is clear as to when his time at the listening centre is finished.

Verbal scripting and structured play opportunities are needed to develop play skills. Visual cues are needed as well, so John knows what to do in a play situation.

Rules in picture and written form will help John to better understand what the expectations are for each situation he encounters. Sign language will not

assist him beyond verbal cueing. He has difficulty processing information which is temporally encoded - in time - rather than spatially encoded so that it remains in sight over long periods of time.

Language Class - Social stories would be a good follow-up to the small group activities and dramatisations done in class. John could refer again and again to the activity and the vocabulary. When possible, the activities should take place in real life, in the community. This would help ensure that the language and social skills would transfer from class to real life.

A social story needs to be written about greetings. John needs to learn to face the person he is saying hello/good-bye to - direct eye contact while he is greeting may be too much of an expectation at the beginning. The social story should be rehearsed a number of times initially with role-playing. It should then be put into a binder/book so that John can have access to it when he would like to reread all his stories. After improvement in the targeted skill has been noted, the social story only needs to be used again at times when John is not demonstrating the skill appropriately.

Swimming lessons - John needs to be prepared for activities that are new to him or frightening. For example, since John appears afraid of going into the bubble pool, he should work on this on a one-to-one basis with a familiar person at some other time. This can then be transferred to the group setting once John knows what to expect.

Distractions are inevitable and John does very well for the amount of noise, visual distractions, and different sensory inputs in a large pool such as the

one John was in. John should remain as independent as possible during social situations such as swimming where the goals can be achieved over a long period of time. For academic and language goals, more one-to-one is needed if progress is not being noted over a short period of time.

The better John is prepared beforehand about the expectations of each task or activity, the better he will function. When routines are consistent, John will make more social gains. He has to know what will be happening, be able to follow through easily, and then he will need some one-to-one assistance to develop more appropriate social interactional skills.

Music class - John may need a social story to explain the different rules for starting new songs and activities. At this time he appears to accept the explanations with ease. The difficulty, however, is that he may not really understand the explanations. This will be evident if he asks the same questions over and over again, or if he demonstrates difficulty through his behaviour.

John needs hand-over-hand training to learn how to tap out the beat.

The teacher has established a pattern of allowing the children to interrupt the music circle as planned to ask questions. John does not understand that the questions should be directly related to the activity. It would be better for John if he was redirected to the activity by telling him what is expected at the time, rather than allowing him control and, therefore, the chance to get off-topic.

Writing the order of the songs on the board and then crossing them out or checking them off may assist John with making the class more predictable and structured. Often children perseverate and ask off-topic questions because the

expectations at the time are not clear or not visual enough for them. Also, once the pattern of interrupting and asking off-topic questions is established, children may feel that it is now part of the normal routine.

A carpet square may assist John in choosing an appropriate space to sit during the circle time. The carpet square can be placed facing the teacher and spaced at an appropriate distance from others, so that he does not invade someone else's personal space.

Social stories - John needs social stories for situations that cause him anxiety, for situations that are new and not learned, and situations that are difficult behaviourally for him. Social stories can also introduce academic, language, communication, and socialisation goals. Social stories may be combined with scripting, thereby giving John the "scripts" or the language with which to communicate. Social stories need visual pictographs to accompany them to ensure comprehension. Remember, reading and decoding is a rote ability with little meaning assigned to what is read. Social stories should be short and not contain too much language that someone John's age can not process.

The goal of social stories is for John to internalise the story and memorise it so that he may regulate his own behaviour. Social stories do not take the place of direct one-on-one intervention, modelling, and teaching of language and socialisation skills.

Schedules and scripts - A schedule should only provide a brief glimpse of where you would like John to be. They are only used to facilitate transitions from one place to another, or from one activity to another.

The individual schedule, as presented in Appendix E, is more along the lines of social story format rather than being appropriate for a visual schedule. The statement about having free time until John's mother says it is time to go to class is too open ended. There should be a visual cue as to when free time will end in order to not cause anxiety on John's part.

The individual arrival and departure schedule, also in Appendix D, needs to have pictures to go along with it. Use verbal cueing while pointing to the appropriate picture. Decrease the verbal cueing and use just pointing to see if John will then take his cue from the pictures and words. Leave the visual cues up even if John becomes independent in these activities. On a bad day, John will need to refer to these visual routines. Flexible methods for presenting the same type of self-help routines can facilitate easy changes as needed. For example, laminate cards, attach with Velcro to a vertical board. The board and the cards can then be used in the bedroom for dressing and undressing in the morning and night, at the front door for dressing and undressing his outdoor clothes, and at school for the same dressing and undressing routines.

Although John can decode words, we do not fully know exactly what his comprehension level is. Cutting back on the amount of print and pairing it with a generalised black and white or coloured line drawing (pictograph) will increase John's chance at instant comprehension.

If John is able to carry out an instruction or follow part of a schedule, then that does not have to be included in a schedule. Environmental cues are very powerful visual cues and John should rely on appropriate environmental cues as

much as possible. This will make him more independent and "normalised".

Using simple black and white or coloured line drawings instead of the written statements would be better. This would match John's age level and ensure comprehension. Written language alone is not usually used until grades two to four, even with the highest functioning children, as their comprehension of what they read remains much lower than their decoding abilities.

Pictures and print cards should only be used to direct John to an area or activity. Language, academic, and socialisation goals need to be addressed through modelling, one-on-one teaching, the use of scripts, and through the use of social stories.

The use of terms like "I will say...", "I will go...", "I will do...", and "I will sit...", may lead to anxiety and negative behaviour as they do not allow for difficulty in initiating movement or speech. These statements also restrict John when he may want to prepare himself for what is asked. They also do not take into account bad days when internal states or motor planning problems may interfere with responses. Always rephrase these statements to be less directive. For example, say, "I will try to...".

Team functioning - The teams which seem to see the best results are the ones that meet more frequently and make more in-depth programming decisions. Generally, a specific plan is implemented after it is in written form with all the steps. Key members of the team are asked to record observational data. The team will meet again within the first week of implementation - to iron out any bugs or to make necessary changes. Key members will keep the data collection going

while other consulting team members will come in to observe the child once or twice. The team will meet about one week later to review and revise the plan. Observations and consultation visits will be ongoing. The team will move to meet only every two to three weeks if the problem appears to be worked out. All team members must make a commitment to meet otherwise changes are not seen. Often, the team consists of the following people: vice-principal/day-care director/program director, classroom teacher, teacher associate, psychologist, speech and language pathologist, and parents.

Negative behaviour - At the beginning of a behavioural episode, John is in control of himself, but as the interaction continues, John loses control. He may know what is happening and know that it is wrong or that he is hurting someone, but he will not be able to stop himself. It is of no use reasoning with him or getting upset. Wait until he is calm and then try to set-up a very structured behavioural program that is carried out very consistently. The program may look something like this:

Stage	Behaviour	Response
Step 1	Try to identify a behaviour that indicates the pattern is about to start - e.g. tense body or different touch response.	Verbal question - e.g. "John, would you like something/help?" This is a redirecting statement that does not contain a negative.
Step 2	Hurting someone,	Verbal cue - e.g. "John,

	touching inappropriately, or engaging in inappropriate play.	what kind of touch do you need to use?" Point to a visual cue of appropriate behaviour at same time.
Step 3	Inappropriate behaviour continues.	"John, you need to go to your room and have a time out. Come back when you are calm." John should take a script that contains statements describing appropriate behaviours with him to his room. He can return when he decides he is calm.
Step 4	John returns from his room but there is no change in his behaviour or he is still perseverating on his own agenda.	The adult in the negative interaction leaves the room, saying, "When you are calm and gentle, I will return. If John attempts to interact with another adult in the room, they should redirect him to look at a book or video

independently until the other adult returns.

Every time John engages in misbehaviours, these stages must be followed. The more consistent everyone is in dealing with the negative behaviours, the faster the cycle will be broken.

Anxiety-related behaviour - John appears to be increasingly affected by stress, worry, and anxiety. John's response to this anxiety is to put his hands in his mouth (i.e. mouth his hands and fingers). It seemed that this behaviour consistently occurred in a number of settings, such as: transition times; unstructured times; waiting periods; periods of fear, unclear expectations, and anxiety; activities which are predominately auditory rather than visual or tactile.

The use of a visual cue may assist John in becoming aware of this behaviour. A small, double-sided pictograph of hands and a face could be used in this situation (one side shows the inappropriate behaviour and the other side shows same behaviour but with a large X through it). The card is used to train John as to when he is doing each behaviour rather than to tell him to stop the behaviour. Keep tone of voice non-judgemental. When John does not have his hands in his mouth, show him the side with the X (no hands in mouth) and tell him that he does not have his hands in his mouth. When John does have his hands in his mouth, show him the side without the X (hands in mouth). Label the behaviour for John. Say, "John, your hands are in your mouth." John may eventually use the card to cue himself to stop the behaviour. For example, when John has his hands in his mouth, place the card beside him with the appropriate

side facing up. The visual cue may be enough to stop the behaviour without anyone saying anything to him. John may then turn the card over so that he may cue himself to stop the inappropriate behaviour.

These cards should be available and used in all the environments (i.e. home, preschool, music class, language class, etc.). The use needs to be very consistent and not used as a punishment, rather, to make John aware of his behaviour.